GYMNASIUM, SOLEBURY SCHOOL, NEW HOPE, PA. *William Hunt, Designer; Morgan C. Rulon, Engineer*

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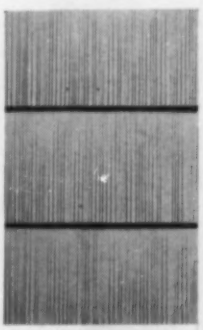

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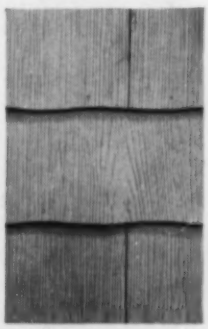

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ARCHITECTURAL RECORD

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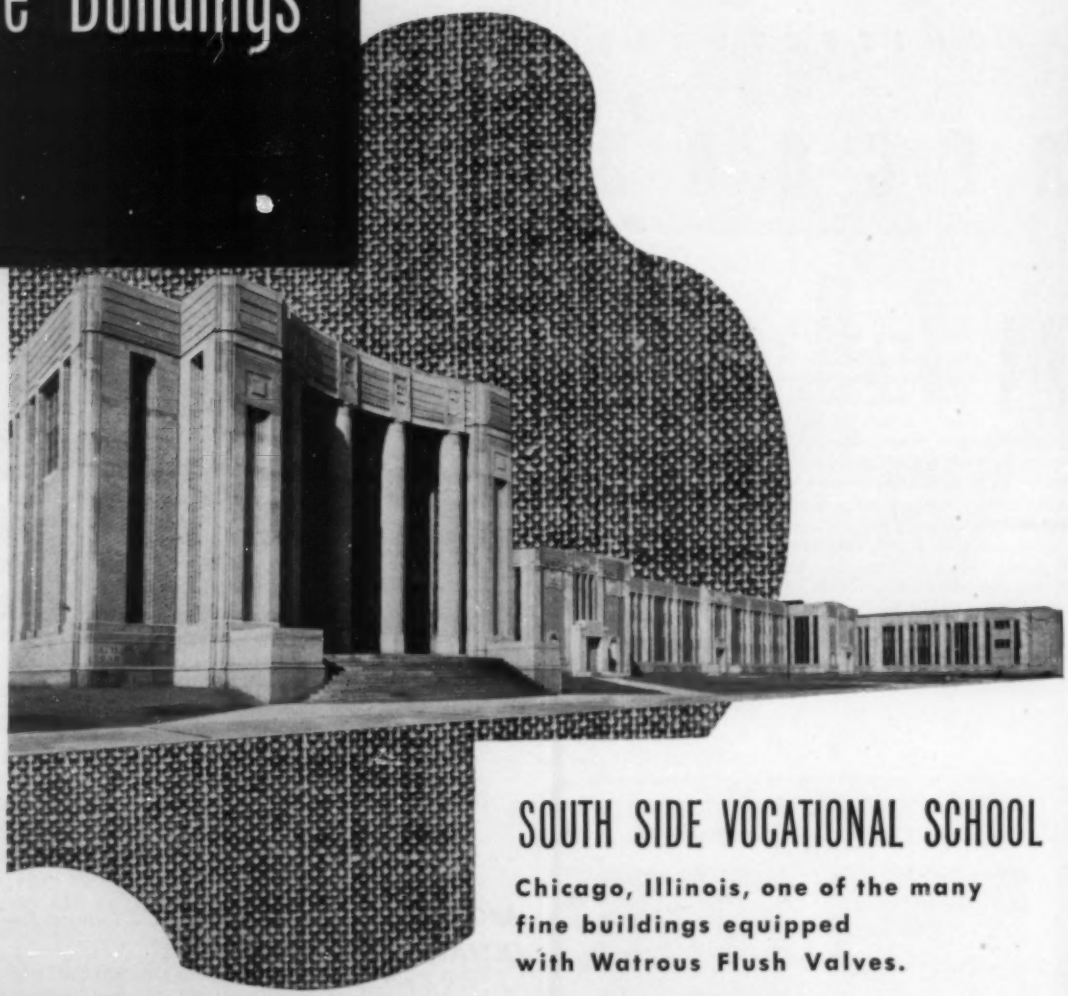

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THE RECORD REPORTS

Floor Debate on Housing Aids Delayed by Rules Committee; Petition for Hearing Filed; Action On 'Private Enterprise' Bill Urged by Industry

Sponsors of the Administration's public housing bill (H. R. 4009) encountered more formidable opposition than they had expected during the last stages of the House fight. Perhaps they were misled to some extent by statements from the opposition made following Senate passage of S. 1070 late in April. The top-heavy Senate vote of 57 to 13 on the public housing measure prompted leading opponents to say they might give up the strong battle to defeat — the fight waged so successfully by them in former years.

But rather suddenly a new strategy developed just before the House Rules committee began talking about H. R. 4009 and trying to decide whether to give it a rule for floor debate. Rep. Brent Spence (D-Ky.), who fathered the Administration's housing principles in this first session of the 81st Congress, never expressed any doubts that the bill providing for construction of 1,050,000 public housing units in seven years would sail through the lower chamber. Evidently he anticipated only mild efforts to amend it during debate. It came as something of a surprise, therefore, when opponents led by Rep. Jesse Wolcott (R-Mich.), launched an all-out drive to defeat the legislation. This new strategy first became openly apparent when Wolcott stated the negative position before the Rules Committee.

From then on, the factions squared off and observers followed a contest reminiscent of 1947 and 1948.

During three days of hearings, Rules Committee opinion shaped up against giving the bill a go-ahead for floor consideration. This was the point at which similar legislation was killed previously after passage by the Senate on two occasions. But this time, Rep. Spence had recourse to a new parliamentary procedure adopted early in the session. (ARCHITECTURAL RECORD, Feb., 1949, p. 14) He could by-pass Rules by petitioning for recognition on the floor after 21 legislative days beyond the time the Rules Committee failed to acquiesce. And as the House wrote the new procedure, the committee chairman was assured of getting the bill before the full House on the second or fourth Monday following the lapse of the 21 legislative days. Phrasing covered this as follows: "the Speaker shall recognize the member seeking recognition for that purpose as a question of the highest privilege."

Confirmation that the Rules group was not disposed to permit an earlier airing of H. R. 4009 on the House floor came when its chairman, Rep. Sabath (D-Ill.), advised Spence to take action under the new parliamentary method. Sabath told Spence this action should be taken the first of June. Filing of the petition at that time would place the legislation on the House floor no earlier than June 27. The Kentucky legislator again, however, expressed his confidence with these words: "In a matter of such general importance and interest I don't think the Rules committee will try to usurp the functions of the House."

But he failed to reckon with log-rolling tactics among Rules members — another surprising development that spelled delay.

Little Said about Research

Whether or not any significance attaches to the fact, there was very little said in the Rules Committee debate on Title III of H. R. 4009, the research sections. And no objection was raised to it. Similarly, before the House Banking Committee, most witnesses directed their barbed criticisms to other sections of the bill, though research in housing was more thoroughly discussed than before Rules members.

Some observers take the view that potentially there may be as much political dynamite in Title III as in other parts of the legislation. Certainly architects will have a major interest, as a profession, in the expanded research sections. This statement from the House Banking committee report pretty well summarizes what new responsibilities enactment places on the housing agency:

"This section authorizes the Housing and Home Finance Administrator to undertake and conduct a program with respect to technical research and studies concerned with the development, demonstration, and promotion of the acceptance and application of new and improved techniques, materials, and methods which will permit progressive reductions in housing costs and stimulate the increased and sustained production of housing, and concerned with housing

(*Continued on page 10*)

"There! Now do you still roll?"

— Drawn for the RECORD *by Alan Dunn*

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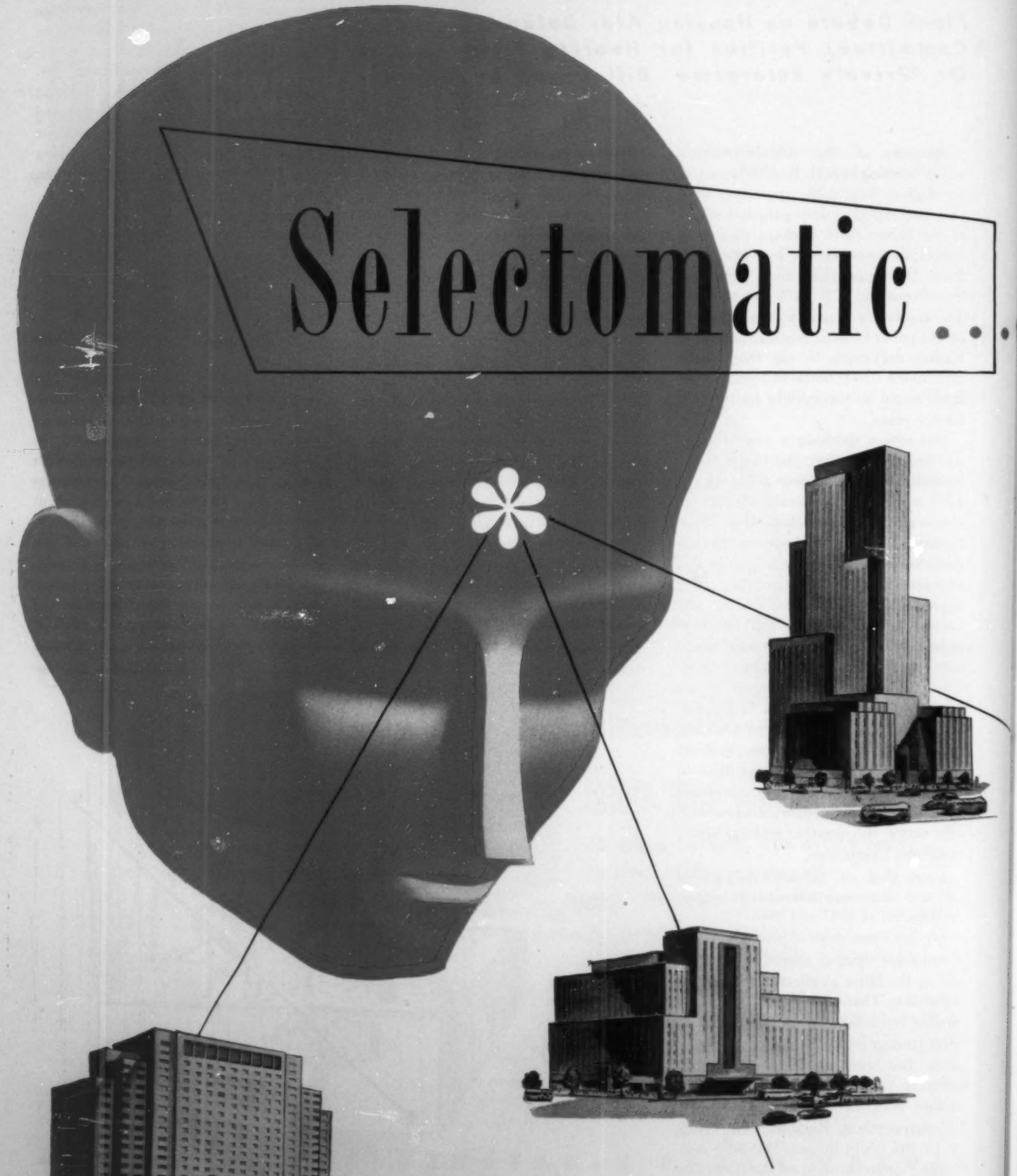

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THE RECORD REPORTS

(*Continued from page 7*)

economics and other housing market data." This is an extremely broad statement in itself, and has led to fears on the part of a few that it might oversubscribe the responsibilities of the housing administrator in the field of developing new materials and methods in housing.

The research Title goes a step further in blanketing the authority of HHFA to improve and standardize building codes and strive for their more uniform administration. Standardized dimensions and methods for assembly of home building materials and equipment come under the same category. This authority was first spelled out in the Housing Act of 1948, passed in the closing hours of the 80th Congress.

Generally, the building industry regards these research provisions as being far from a serious threat to activities in its own province. It recognizes the effort of Congress to pin down HHFA to a path of close cooperation with private research interests in all its endeavors in this field.

One new argument came from the Banking Committee in its proposal of this Title; the argument that HHFA needs a laboratory of its own for carrying out these investigative functions to their logical conclusion. An excerpt from the Report explains the stand:

"The HHFA has no laboratory of its own and must utilize other government agencies and contract with eligible agencies of state and local governments, educational institutions and other nonprofit organizations for laboratory research; however, such laboratories are frequently reluctant to tie up their facilities in short-term projects offering no assurance of completion. Many research problems are complex and require for their solution a series of time-consuming successive steps. This provision is therefore necessary in order that a research program can be undertaken with some assurance that the projects initiated will be carried to a conclusion."

With its responsibilities so broadly outlined, the technical division of the housing agency was reluctant to talk of detailed plans for the future in carrying out Congress' intentions. It was apparent though that the research sections as written would permit HHFA to probe

(*Continued on page 12*)

HOSPITAL CONFERENCE

Perhaps the biggest news from the Southern Conference on Hospital Planning is in the simple attendance figures bearing witness to the interest in this topic in the Deep South, where the federal aid program is beginning to dot the landscape with new hospitals for the "medically indigent." Some 360 architects laid down $25 to hear a rather impressive list of speakers hold forth on various aspects of planning hospitals. This figure represents over twenty per cent of the total invitations, a pretty high batting average for a convention on a specialized topic.

There are those, of course, who simply explained the high percentage by saying that Moreland Smith, conference chairman, and his committee (with the spirit of Marshall Shaffer hovering around in the background) just did such a good job of lining up everybody, coupled with a natural southern urge to get together in Biloxi to drink "bourbon and branch water."

In any case the gathering was a notable success, the more notable because it was something just sort of thought up to speed the hospital program in the South, without any real precedent, and prob-

(*Continued on page 172*)

NEWS FROM CANADA

By John Caulfield Smith

Steffens-Colmer Ltd. Photo

Vancouver Shopping Center

A $1.5 million drive-in shopping center is announced for West Vancouver by British Properties Ltd. To be Canada's largest, it will cover 11.5 acres and contain super-market, retail stores, arena and theater. Buildings will have a frontage of 1300 ft. and a floor area of 150,000 sq. ft., with parking space for 700 cars. Site plan and architecture will be in the West Coast Modern tradition.

British Properties Ltd. has extensive realty holdings in British Columbia. It is owned by the famous Anglo-Irish brewing family, Guinness.

Mortgage Loans Scale Peak

Institutional mortgage lending reached a record total of $343 million in 1948, Central Mortgage & Housing Corporation reports in its annual review "Mortgage Lending in Canada." The previous high of $258 million was established in 1947.

The review, which is intended to provide factual information on the volume and conditions of real estate financing, estimates that 1948's mortgage loans amounted to nearly 19 per cent of total institutional assets. While this ratio is considerably below 1939's 24.4 per cent, "the assets of the lending institutions have increased rapidly in the last decade and are currently approaching the $4.5 billion mark." In 1939 they were $2.8 billion.

Will Study Rental Housing

A four months study of planning standards for low-rental housing is to be undertaken by the staff of the School of Architecture, University of Toronto, for Central Mortgage & Housing Corporation. Professor Eric R. Arthur is the chairman of the committee in charge.

Projects in operation in Canada and the U. S. will be visited, and it is hoped that results of the study will be published in the fall.

Labor-Management Cooperation

At the beginning of 1949 there were 600 labor-management production committees in operation in Canada, 57 more than at the beginning of 1948, it has been announced by the Labor-Management Cooperation Service of the federal Department of Labor.

The committees are made up of representatives from management and labor and function in an advisory capacity on all matters affecting industrial productive efficiency. They do not deal with subjects covered by collective bargaining agreements.

A breakdown by industrial groups of the 600 committees in operation shows that recognition of their value is not confined to any specific industry. Manu-

(*Continued on page 154*)

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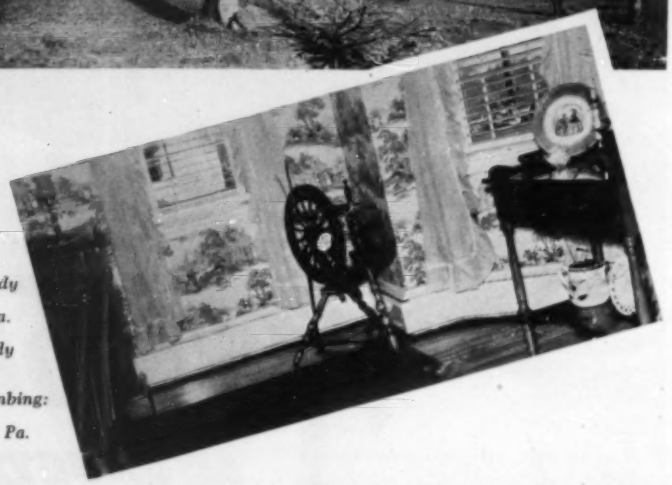

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THE RECORD REPORTS

(*Continued from page 10*)

far more deeply than it has so far into development of new materials and methods of assembly in home construction.

Industry Expresses Views

Watching the juggling processes in Congress, private home builders took the position that leaders were deliberately forestalling action on the so-called private enterprise bill (S. 712) to force through a public housing scheme for a few favored families. S. 712, a measure backed strongly by all segments of the building industry and by the federal housing agency, would provide what the home builders term adequate mortgage insurance on loans on small homes with a five per cent down payment. This would carry through the present Federal Housing Administration's program of mortgage insurance.

Coincident with the annual spring meeting of the directors of the National Association of Home Builders, President Rodney M. Lockwood, of Detroit, stated that industry's program aimed at building economy homes for a million persons this year was blocked for months by the shelving of S. 712 in Congress. He accused Administration leaders of devoting their time to passage of a socialized housing bill while deferring action on the home building measure which would immediately start a flood of low cost housing throughout the country.

These views were pretty generally supported by Bureau of Labor Statistics figures covering the first quarter of this year. BLS reported on urban housing starts reflected by permit business. This disclosed that more than 15,000 fewer housing units were started in the first three months of 1949 than in the same period of 1948. Average dollar value rose slightly over the one-year period. BLS lists 102,493 urban housing units started in January, February and March of this year valued at $689,665,000. Comparative figures for 1948 — 117,504 units valued at $739,494,000. This represents a drop now of 15,011 units and $49,829,000 in overall value.

Lockwood put the responsibility up to the lawmakers themselves with this statement:

"If Congress wants to see full employment continue in the home building

(*Continued on page 14*)

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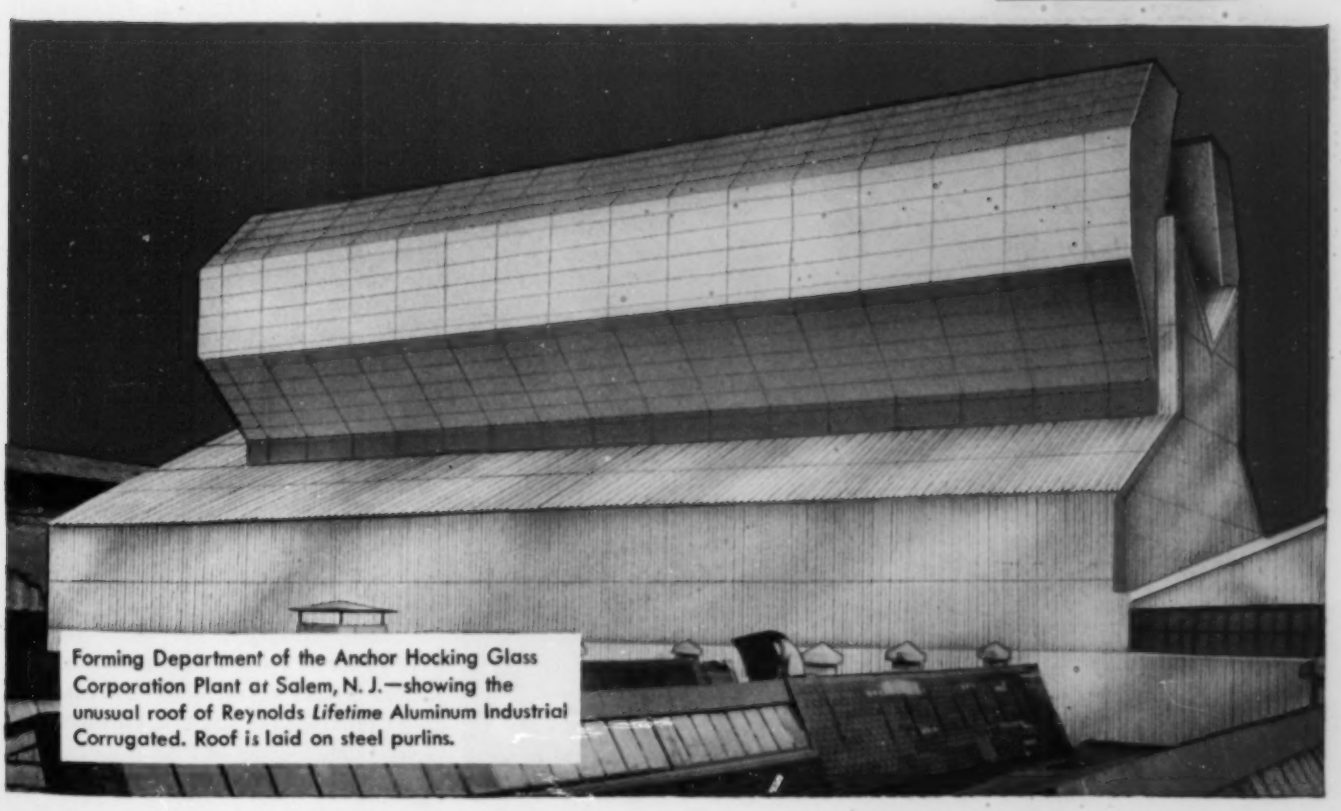
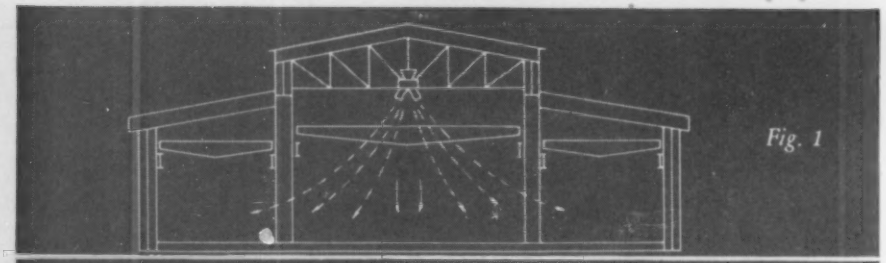
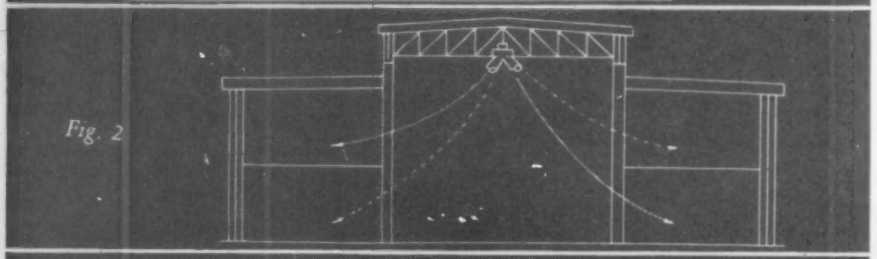
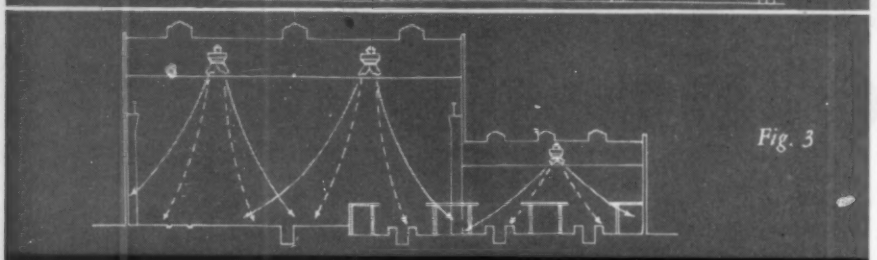


Forming Department of the Anchor Hocking Glass Corporation Plant at Salem, N. J.—showing the unusual roof of Reynolds *Lifetime* Aluminum Industrial Corrugated. Roof is laid on steel purlins.







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For further details write for Bulletin HR-5.

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THE RECORD REPORTS

(*Continued from page 12*)

field, if it wants to see a strong and steady supply of good, lower cost homes, then the home building measure, S. 712, must be enacted at once. The people of America who are waiting for new homes or good rental dwellings are being sold out while certain Congressional leaders try to put over a foreign socialized idea in housing."

NAHB also complained that the public housing bill sought to sanction construction of four and one-half room apartment units at a ceiling cost of $15,000 each, including land. This was bitterly criticized by the home builders in the face of federal government pleadings that private industry erect comparable housing at a cost of $7,000 per unit or less. This just doesn't make sense, said the home builders. Why should housing intended for families in the welfare class be built at a cost more than double the cost of small single family homes? To date there has been no adequate answer to this question from Capitol Hill.

Public Buildings Planned

Both houses of Congress passed the public buildings bill with minor differences. It was assured of conference committee clearance and quick enactment. This is the measure that calls for eventual construction of a new federal building in each Congressional district in the country which needs one; a fair illustration of its easy course through Congress.

It is important to note that no construction funds for new structures are provided. An appropriation of $40 million is authorized for acquisition of sites and preparation of plans for public buildings. These projects are to be distributed equitably throughout the country "with due regard to the comparative urgency" in various sections.

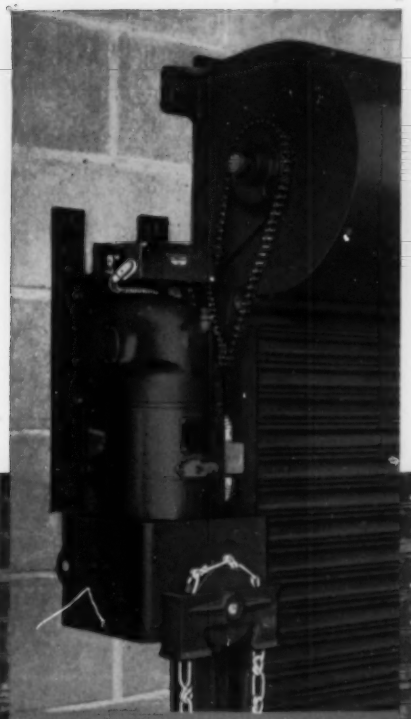
Another part of the measure provides for $30 million for a repair and renovation program affecting existing federal buildings. This would be established as a three-year plan with expenditure of $10 million each year. Only those remodeling projects costing $25,000 or more would be affected.

The well-known bid advertisement procedures of the Public Buildings Administration will be followed in carrying out provisions of the Act. Furthermore, the Commissioner of PBA is authorized

(*Continued on page 16*)

Rolling Steel DOORS

Manually • Mechanically • Power Operated



MAHON STANDARD
POWER OPERATOR 920-P

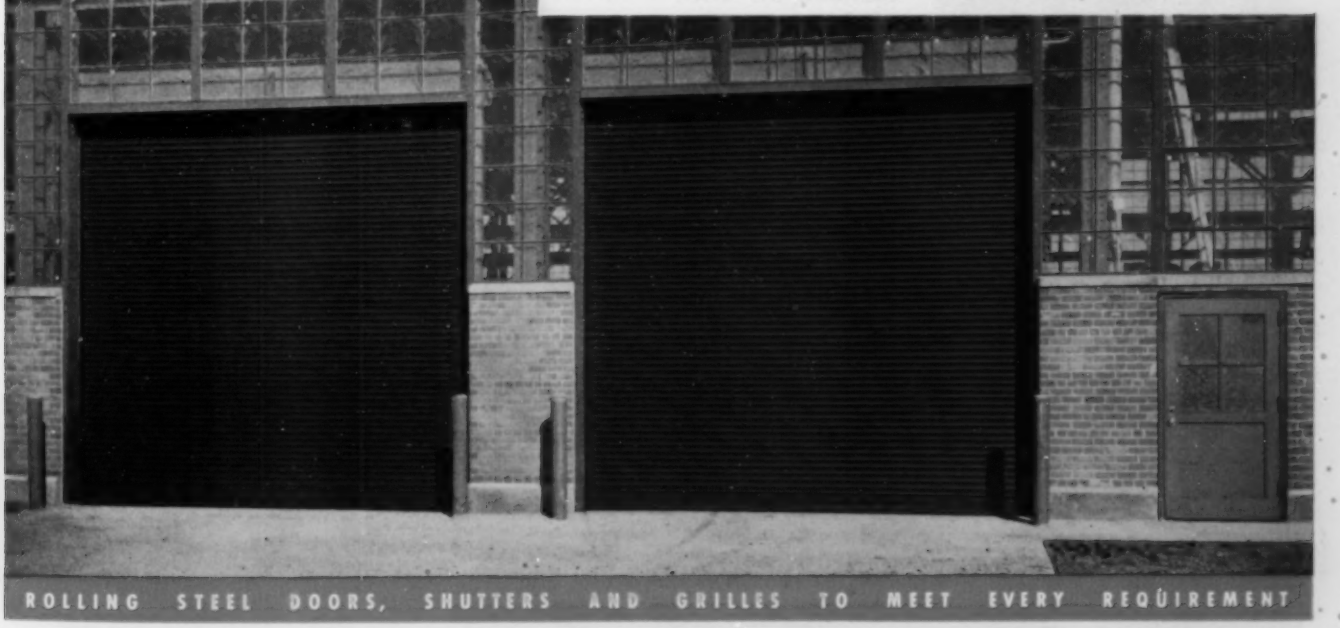
The advantages of a good rolling steel door are manifold. Their vertical coiling action occupies less space adjacent to the door opening than any other type of door . . . they provide more positive protection against intrusion and fire, and the permanence of all-steel construction assures a lifetime of continuous trouble-free service. In Mahon Rolling Steel Doors, you will find the latest developments in doors of this type—exclusive Mahon features in door construction and operating devices which have proved conclusively their desirability in everyday operation. See Sweet's File for detailed information and complete specifications.

THE R. C. MAHON COMPANY

Detroit 11, Michigan • Western Sales Division, Chicago 4, Illinois

Representatives in All Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Steel Walls; Steel Deck for Roofs, Partitions, Walls, Acoustical Ceilings, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

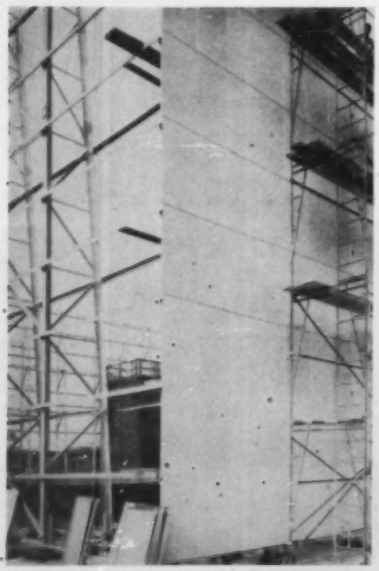
Two of Nine Mahon Power Operated Rolling Steel Doors Recently Installed in a New, Modern Industrial Plant.

MAHON

GENERAL PETROLEUM BUILDING, LOS ANGELES, CALIFORNIA

for an Harmonious Blend

SEAPORCEL *PORCELAIN ENAMEL* WAS SELECTED



Topping this new magnificent building is an installation of over 24,500 square feet of Seaporcel Porcelain Enamel . . . yes, virtually 30 tons of this mechanically fastened material of permanence and beauty.

Matching the varied shades and textures of this structure's terra cotta exterior, lightweight Seaporcel Porcelain Enamel completes in perfect harmony the impressive dignity of this distinctive new building.

Holes to accept letters and Pegasus figures were burned in by gas torch on the job after porcelain enamel was erected.

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SEAPORCEL IS PRACTICAL • EASILY CLEANED
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*Reg. U. S. Pat. Off.

Seaporcel
Member Porcelain Enamel Institute, Inc.

THE RECORD REPORTS

(*Continued from page 14*)

to employ by contract or otherwise, temporary architectural and other professional and technical service by negotiation without regard to the Classification Act of 1923, or civil service regulations.

Post offices will comprise the bulk of construction whenever the actual building is started. Congress acted on the bill with the conviction that this construction will begin when rising unemployment demands it, not before. The Federal Works Agency said it wanted no such comprehensive nationwide building program at this time — but it did want an adequate backlog of planned public buildings so that such a program could begin quickly.

There was evidence in the PBA Commissioner's testimony that terms of the new law would provide for approximately 450 projects or additions to be planned. This is only around one-tenth of the proposed buildings on the agency's eligible list.

The legislation continues in force the public buildings policy established by the basic law passed in 1926. This delegates authority for selection of building projects to the executive agencies, at the same time retaining for Congress full control over policy and the appropriation of funds.

Shorts

• A national plumbing code, applicable to housing, commercial and industrial buildings, moved closer to realization with appointment of a coordinating committee to tie together the loose ends of efforts made toward this goal so far. Its objective is to push forward on all fronts toward effecting national adoption. The housing agency has issued a uniform code which is being used by some cities but responses indicated a regulation applicable to housing alone did not go far enough. The Commerce Department, through its Bureau of Standards, the University of Iowa, the housing agency and a dozen interested private organizations are continuing the work. They hope to have a comprehensive uniform plumbing code drafted soon; one that will serve all types of structures.

• The Veterans Administration continued to have its money problems, and this affected the military hospital construction program. With the House al-

(*Continued on page 18*)

Aerofuse IN NEW YORK

AEROFUSE IN MACY'S

TYPICAL INSTALLATIONS IN THE NEW YORK AREA

- New York Times
- Textron, Inc.
- New York Telephone Co.
- Wm. Iselin Co.
- Best & Co.
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- Federal Building, N. Y. International Airport
- Seamprufe, Inc.
- Sterling Winthrop Research Institute
- Riverside Memorial Chapel
- Atomic Energy Commission
- Memorial Cancer Hospital
- Victoria Theatre
- Cove Theatre
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- Bell Telephone Laboratories, Murray Hill, N. J.

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ENGINEERED to meet the most exacting specifications *at the vital point of air delivery*, Aerofuse Diffusers have an outstanding record of performance in the "who's who" of buildings — commercial, institutional, industrial — from coast to coast. The partial list of installations in the New York Area is typical of Aerofuse acceptance.

The competent engineers, architects and contractors responsible for specifying and installing these jobs know from experience that Aerofuse Diffusers measure up to every requirement of efficient, satisfactory performance . . . meet every demand for equipment that harmonizes in appearance with modern interiors...and answer the need for cost savings!

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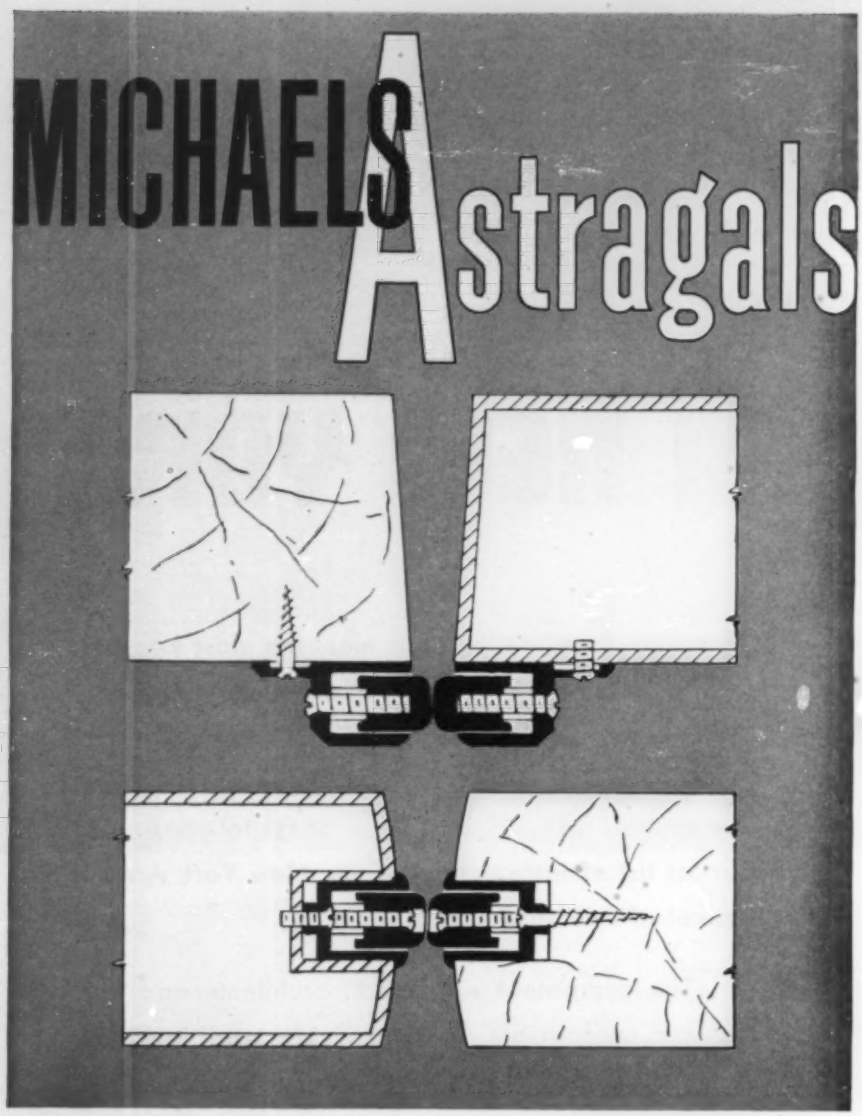
NEW BRITAIN, CONNECTICUT



Write today for information and prices on Michaels Adjustable Astragals. Made of extruded bronze, aluminum or nickel, they are simple, practical, rugged, easily installed and adjusted, and available in several styles. Two are shown above. Type A (top illustration) may be applied to either wood or hollow metal bevel doors. Also used as a stop bead. Type E (lower illustration) is for bullnose hollow metal or wood double doors. Both types may be used at the bottom of doors. Michaels Astragals help keep doors closed tightly . . . eliminate drafts and air currents . . . keep out dirt and dust. Write for details. Astragals are only one of many items in the Michaels line. So whatever building product you need, if it's made of metal, we may have it or can make it.

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Kick and Push Plates
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Member of the National Association of Ornamental Nonferrous Metals Manufacturers

THE RECORD REPORTS

(*Continued from page 16*)

ready having restored $237 million to permit the building of the 16,000 beds which President Truman had ordered cut from the authorized total, members of Congress turned to the Senate in asking that the full amount be given. Sen. Claude Pepper (D-Fla.), whose Senate Labor subcommittee heard extensive testimony on the cut-back and its possible effects, said the Budget Bureau used "cold figures" in recommending that the President curtail the program. But VA had new worries in a budget slash that threatened its volume of personnel to staff these new hospitals. Unless the Senate restored many millions cut out by the House for hiring medical and surgery personnel, it would have trouble staffing the hospitals to be completed this year and next, VA said. Through April five new hospitals had been completed in the gigantic construction program. Sixty-two others were in various stages of progress, 30 of them with contracts awarded.

• There was every indication that supplies of building items offered no more major problems to the industry and this was particularly evident in steel. The Office of Industry Cooperation relaxed its hold on voluntary allocations programs, suspending altogether that for steel for manufacture of housing items. Walter S. Tower, president of the American Iron and Steel Institute, said prospects were suggestive of potential surplus, that supply may now be running ahead of actual consumption. The issue of government intrusion into the steelmaking field has not passed in spite of these trends, Tower warned.

• The wholesale prices of building materials continued to move fractionally downward in the closely-watched index of the Bureau of Labor Statistics.

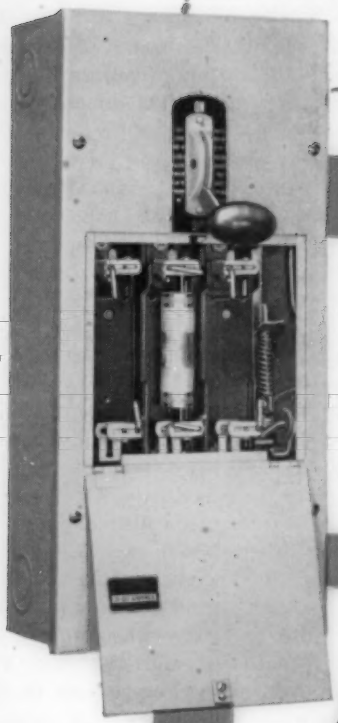
• The supply of lumber has overtaken demand. This is shown in the 72nd quarterly report of the Lumber Survey Committee to the Secretary of Commerce. Lumber prices have been dropping steadily (an average of one per cent a month) for the past seven months. Hundreds of small mills have discontinued operations. Larger mills have shortened hours.

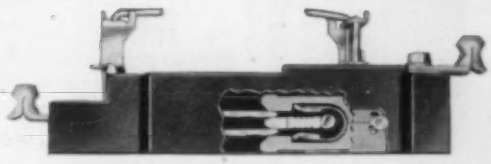
• The highly touted industry-labor arrangement for handling jurisdictional labor disputes within the construction industry is headed for the rocks after

(*Continued on page 20*)

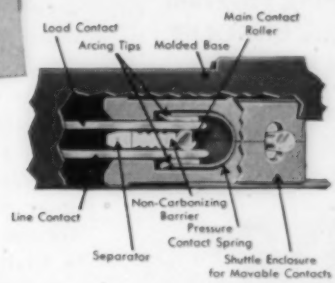
A Time-Tested Switch that's...

Still the Pioneer of BETTER, SAFER SWITCHING!

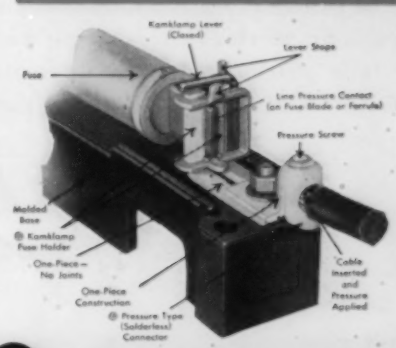




1 **BASES**—Ⓕⓐ Shutlbrak Switch bases are of cold molded material. These bases house the shuttle mechanism and have excellent properties for insulation and mechanical strength.



2 **SHUTTLE DETAILS**—The enclosed shuttle contains the U-shaped spring which keeps the auxiliary contacts and main contact roller under pressure in "on" position. The main contact roller is a heavily electro silver-plated round copper rod which presents a new contact surface at each operation.



3 **KAMKLAMP FUSEHOLDER**—For both ferrule and knife blade type fuse terminals, the Ⓕⓐ Kamklamp fuseholder has pressure type contacts to reduce heating, and eliminates the need for auxiliary means of obtaining pressure between fuse terminals and the fuseholder.

SHUTTLE MOVEMENT, the still-new but time-tested feature found only in Ⓕⓐ Shutlbrak Switches, continues to provide safer, sounder switching for industry.

Ⓕⓐ Shutlbrak Switches embody the latest in design and construction . . . with such features as a barrier between the line and load contacts that *resists arcing* at all times . . . quick make and break connections . . . and heavily silver-plated copper contacts which actually improve with use.

It's an ideal switch for motor control, for service entrance, for any industrial job that demands safe and dependable switching. And, of course, it is approved by Underwriters' Laboratories.

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Makers of BUSDUCT • PANELBOARDS • SWITCHBOARDS • SERVICE EQUIPMENT • SAFETY SWITCHES • LOAD CENTERS • QUIKHETER

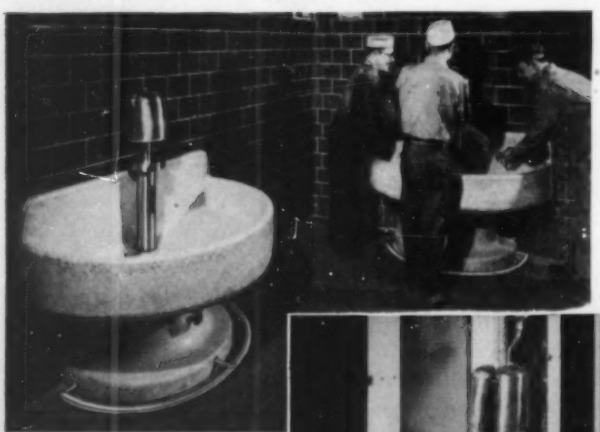
TRIBUNE SQUARE DEVELOPMENT Installs BRADLEY WASHFOUNTAINS In New Building

Tribune Square Development—Architect: Leo J. Weissenborn. Building Contractor: R. C. Wieboldt Co. Plumbing Contractor: M. J. Corboy Co.

● Every inch modern and efficiently planned, the new Tribune Square Development has incorporated the finest in materials, machinery and equipment.

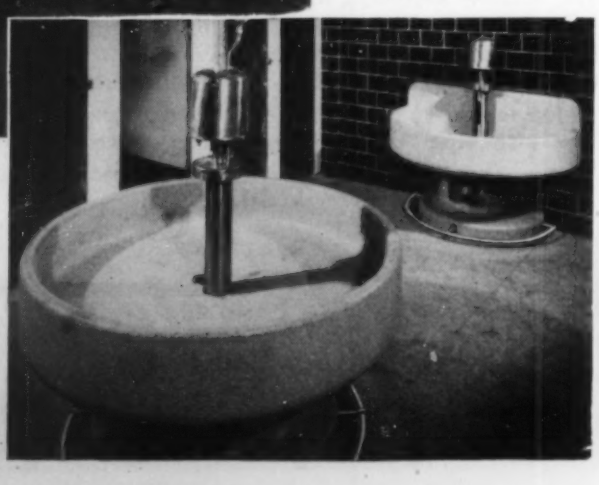
Selection of Bradley Washfountains for economical, sanitary employee wash-up service is in keeping with this building program of using only proved and reliable facilities. . . . . BRADLEY WASHFOUNTAIN CO., 2227 W. Michigan St., Milwaukee 1, Wis.

BRADLEY *washfountains*



The Tribune Square Development includes the new building which extends from No. Michigan Ave. back to St. Clair Street and from Hubbard St. to Illinois Street.

LEFT: *View of modern sanitary Pressmen's Washroom showing two Bradley Semi-Circular Washfountains.*



Interesting Catalog 4701 illustrating the complete Bradley line of modern Wash Equipment will be sent upon request.

Bradley Full-Circle Washfountain used with a Semi-Circular Unit in new Mailing Room washroom. (A total of 4 Circular and 11 Semi-Circular Bradleys have been installed in this Chicago Tribune addition.

THE RECORD REPORTS

(*Continued from page 18*)

14 months of moderately successful operation. The story is that labor no longer cares to play along as a party to the Joint Board for Settlement of Jurisdictional Disputes. The American Federation of Labor building trades have notified the contractors that they want the agreement terminated. July 1 was given as the date. The AGC can do nothing but acquiesce and little hope for any reconciliation was held in prospect.

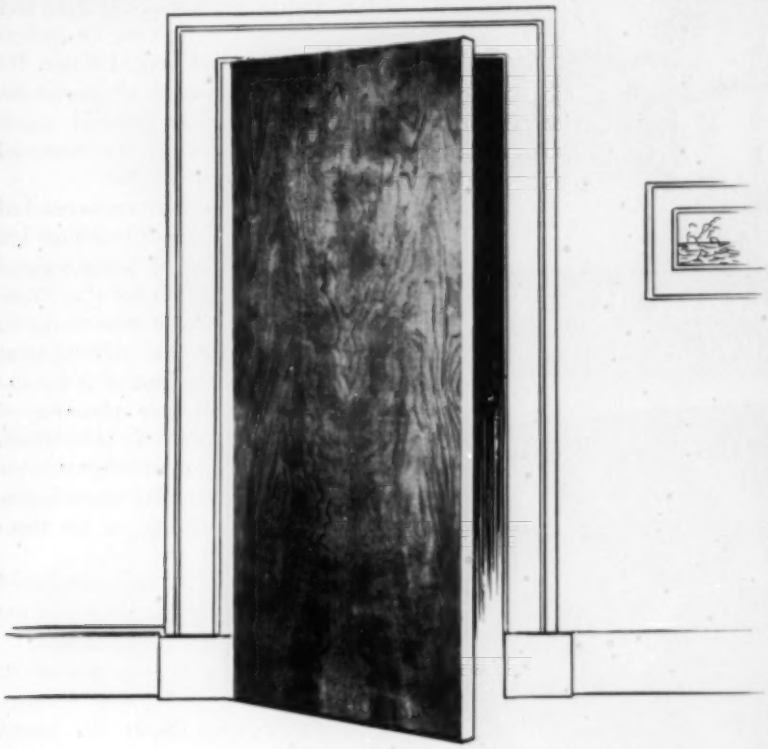
• There were sudden and surprising developments on the basing point pricing front. The Senate hurriedly put through an entirely new substitute plan proposed by Sen. Joe O'Mahoney (D-Wyo.). This would permit building material producers to absorb freight and use a delivered price system as long as they did it independently. All attention had been on the so-called moratorium bill which would have exempted sellers from anti-trust prosecution for a year — until Congress could decide what to do about the industry-wide controversy. The O'Mahoney bill, however, was given little chance of success in the House where opposition to any type of industry exemption has been led by Rep. Wright Patman (D-Tex.). And the O'Mahoney measure certainly is far more sweeping than the milder moratorium provisions.

• Civil Aeronautics Administration revised its procedures to make it easier to build airports under the federal-aid program. Now local sponsors may award contracts under $2000 without competitive bidding. Limit on payments of grants to sponsors is raised from 85 to 90 per cent and sponsors no longer must submit evidence of title, itemized cost estimates, survey maps and abstract of bids. Airport project contractors now may certify that labor laws have been complied with. Formerly, CAA district airport engineers had to make such certification.

• There is a full volume of work ahead for the contractors who built water conservation projects if Interior carries out its present plans for the second century of its operation. Under-Secretary Oscar L. Chapman said Interior will "urge and encourage" private and public construction of 80 million kilowatts of added power capacity by 1970, 30 million of it to be federally constructed. And Interior wants to effect basinwide development

(*Continued on page 22*)

IMMEDIATE AVAILABILITY*

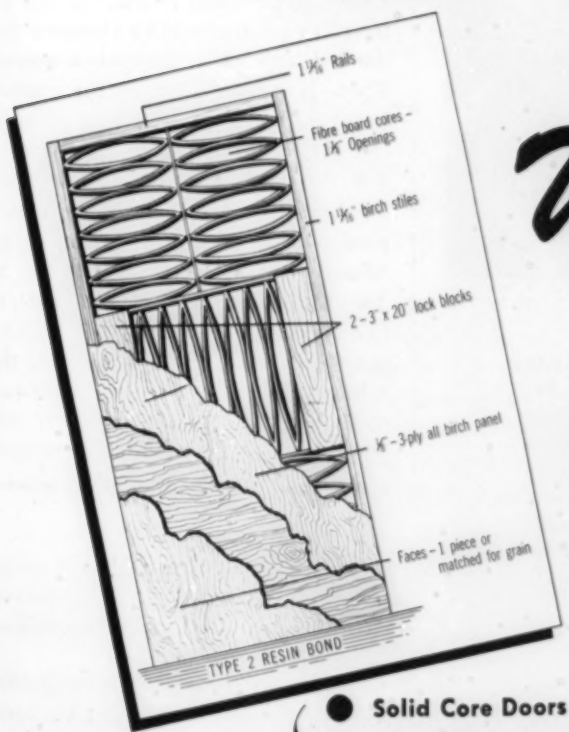


KENNEBEC
NEW ENGLAND
HOLLOW CORE FLUSH DOORS

There's nothing difficult about getting delivery on Kennebec doors. We keep plenty on hand in all types and sizes, and our distributors are well supplied. What's more, we are equipped to produce 1000 doors per day and ship them fast from nearby Maine.

You'll never go wrong when you specify or use Kennebec doors. They are just about the finest made—in appearance, construction and serviceability—as anyone who has used them will tell you.

And there's a reason. Kennebec hollow core doors are manufactured in Maine from the pick of nothern Maine birch. They're made *right*, inside and out. Solid birch edges (an exclusive Kennebec feature), sturdy lock blocks and fibre accordian cores. No waving and rippling, no delamination to wreck appearance after installation.


1⅜" Rails
Fibre board cores – 1/4" Openings
1⅜" birch stiles
2 – 3" x 20" lock blocks
¼" – 3-ply all birch panel
Faces – 1 piece or matched for grain
TYPE 2 RESIN BOND

We'd like to tell you more about these New England doors—how they are constructed, how they can be finished, what independent tests show they will do. So, why not clip the handy coupon and mail it now?

and remember! **YOU CAN GET THEM AT ONCE!**

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Factory; Bingham, Maine

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I am also interested in the following specific information (fill in)

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NOTE: This applies only to the New England states, New York, New Jersey, and Pennsylvania. For quantity deliveries in other areas, write to us for information.

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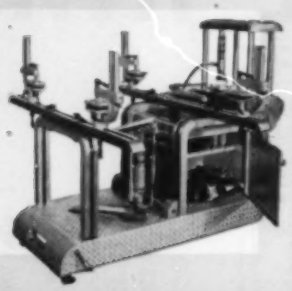

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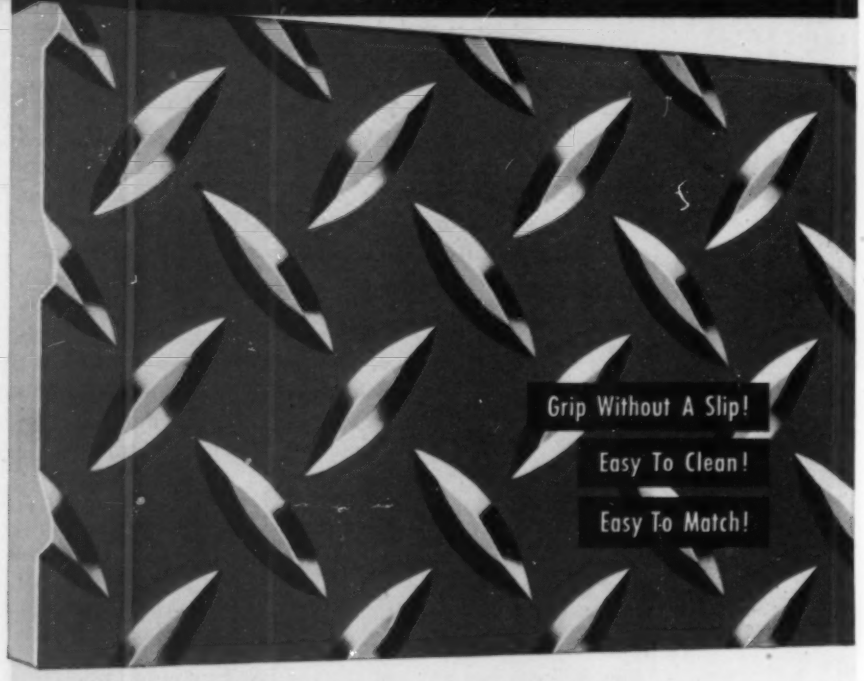
A BETTER FOOTING FOR PRODUCT AND PLANT



Install AW Super-Diamond Floor Plate in your plant and say goodbye to costly slipping accidents and floor maintenance bills. The exclusive engineered pattern provides maximum skid resistance regardless of how the plate is laid or the angle from which it is approached. More and more architects are specifying AW Super-Diamond Floor Plate, and leading Product Designers are using it for machine tool bases, saddle tanks and similar products on which men walk and climb. For safety's sake specify AW Super-Diamond Floor Plate for your plant and products. Write for more information and 16-page, fact-packed catalog.

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THE RECORD REPORTS

(*Continued from page 20*)

of major western rivers, hopes to add 17 million more acres of irrigated land and realize increased yields on nine million more acres by supplemental water. He promised an all-out effort to expand the synthetic liquid fuels program which means construction of more commercial scale plants if it is successful.

• A joint committee conference reached agreement on the public buildings bill which headed for final Congressional approval and signature by the President. No major features were changed; it still provided for total authorization of $70 million, $40 million of it for site acquisition and advance planning of federal structures, primarily post offices, and $30 million for an extensive renovation plan for existing buildings beginning soon and carrying on for three years.

• The Federal Trade Commission issued its proposed trade practice rules for the oil heating industry of New England.

• Congress took a look at a new St. Lawrence Seaway and power development bill (by Sen. Scott W. Lucas, D-Ill.), a perennial renewal of the attempt to get approval by Congress but the first such bill in the current session. There is new interest in the matter, however, with the discovery of large deposits of proved reserves of high grade iron ore in Labrador. More attention was focused on the St. Lawrence seaway plan at the recent opening of the Second Annual International Trade Fair at Toronto, Canada. U. S. Secretary of Commerce, Charles Sawyer, at Toronto to officially open the exposition, said the Administration still desired full-cost construction of both navigation and power aspects of the waterway project.

PHILIP SAWYER

Philip Sawyer, Architect, and senior partner in the firm of York & Sawyer, died May 21 in New York City, following a long illness.

The firm, which was founded in 1898 by Mr. Sawyer and Edward P. York, has constructed many government buildings, banks and hospitals. Among the buildings personally designed by Mr. Sawyer are the Greenwich Savings Bank and the Guaranty Trust Company buildings in New York City, the Children's Village in Dobbs Ferry, N. Y.,

(*Continued on page 164*)

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Since 1885, Minneapolis-Honeywell has pioneered in the development of controls, both pneumatic and electric, for residential, commercial and industrial use. Experienced Honeywell engineers are available for consultation on any automatic control problem . . . Just contact the Honeywell branch office in or near your city, or write to Minneapolis-Honeywell Regulator Company . . . Minneapolis 8, Minnesota.

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The Symbol of Modern Temperature Control

For up-to-the minute information on school heating and ventilating systems, mail the coupon for booklet "Automatic Controls for the Modern School"— just off the press.

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73 BRANCHES FROM COAST TO COAST WITH SUBSIDIARY COMPANIES IN: TORONTO • LONDON • STOCKHOLM • AMSTERDAM • BRUSSELS • ZURICH • MEXICO CITY

REQUIRED READING

PLANNING FOR RECREATION

A Guide for Planning Facilities for Athletics, Recreation, Physical & Health Education. By Participants in National Facilities Conference. The Athletic Institute, Inc. (209 S. State St., Chicago, Ill.), 1947. 8½ by 11 in. 128 pp., illus. $1.50.

The recommendations incorporated in this concise little volume are the result of a conference held several years ago by specialists in planning athletic facilities (architects, city planners, engineers, etc.), representatives of national organizations concerned with athletic programs, and school and college administrators engaged in planning athletic activities. The pooled knowledge of the group forms the basis of the GUIDE and offers the architect interested in the field the benefit of valuable first-hand experience.

The recommendations are based on the theory that community planning is essential to efficient recreation and athletic areas. Each type of facility discussed, therefore, is described in terms of the type of community which it must serve (rural, urban, consolidated, and so on), the existing resources of the area, the social and economic conditions prevalent, and provision for possible future changes within the area. Material covered includes health service, administrative arrangements, swimming pools and stadiums.

Of particular interest to architects are the various plans and diagrams such as the locker room details reproduced in this month's Time-Saver Standards (pages 149, 151). Tables of recommended dimensions for gymnasiums, pools, and other facilities, and the check lists and lists of "blaring errors" also will be of distinct use to the architect.

TREASURE CHEST ON SCHOOLS

The American School and University: 1948-1949. American School Publishing Corp. (470 Fourth Ave., New York 16, N. Y.), 1948. 8½ by 11 in. 732 pp., illus. $4.00.

Once again the book of the year for the school architect turns out to be THE AMERICAN SCHOOL AND UNIVERSITY yearbook, which, now in its 20th annual edition, seems to be bigger and better than ever.

As always, the yearbook contains a number of articles by well-known school architects. Among them: "Designing Beauty into the Educational Building," by Lawrence B. Perkins; "Planning Problems of Colleges and Universities," by Carl Feiss; "Integrated University Plant Planning," by Hermann H. Field; "The Evolution of the School Building," by N. L. Engelhardt; "Designing Educational Buildings for Tomorrow's Needs," by T. Norman Mansell; "Building for School and Community Needs," by Henry S. Churchill; "College Architecture in Transition," by Lorimer Rich; "Germicidal Light in Classrooms," by Isadore Rosenfield; "The Planning Process behind the Blueprint," by Robert E. Alexander.

Other articles, by school administrators, treat such numerous vital subjects as plant research; requirements of the secondary school, the college and university; school building survey techniques; school landscape architecture; playground surfacing; school lighting and plumbing; special needs of homemaking department and health suite; equipment lists for nursery and kindergarten and elementary school classrooms.

Design features include dormitory projects, Wayne University's new plant, two grade schools, Milwaukee's and Illinois Wesleyan's building programs.

The second half of the book, as usual, is given over to a manufacturers' catalog section, followed by cumulative editorial and authors indexes.

WHAT MAKES A SCHOOL GOOD

Guide for Planning School Plants: 1949 Edition. National Council on Schoolhouse Construction (Peabody College, Nashville, Tenn.), 1949. 6 by 9 in. viii + 174 pp., illus. $1.25.

"It is hoped," modestly says the Foreword to this volume, "that the GUIDE will prove stimulating to the school administrator and architect in designing functional school plants." The hope seems entirely reasonable: the GUIDE is jam-packed with the type of good, basic information which should prove not only stimulating but also helpful to both administrator and architect.

The book is divided into logically arranged chapters starting with the pre-planning stages such as determining the objectives to be met, raising the necessary funds, and selecting the site, and continuing with a progression through elementary and secondary schools to the larger community school. Each of these chapters is subdivided into sections, making the book easily adaptable for reference work. Later chapters discuss general facilities such as administrative rooms, library, auditorium, etc., service facilities, school plant safety, acoustics. There are no plans, however, and there has been no attempt at plan analysis beyond an occasional remark that rooms for heart cases should be on the first floor, that a room planned for multiple use should be provided with an outside entrance, that the swimming pool may be so located as to be served by the lockers and dressing rooms provided for the gymnasium.

This, then, is exactly what it says it is — a guide for planning, a reminder for the architect and administrator of the many items to be considered and the goals to be achieved if possible.

FOR SCHOOL ADMINISTRATORS

American School Buildings: 27th Yearbook. American Association of School Administrators (1201 Sixteenth St. N.W., Washington 6, D. C.), 1949. 6 by 9 in. 526 pp., illus. $4.00.

Despite the fact that this is a yearbook meant chiefly for the school administrator, much of the material it includes will be of vital interest to the school architect as well. It was written by a 10-man commission of educators headed by Warren T. White, Superintendent of Schools, Dallas, Texas, with architect Howard Dwight Smith serving as the official A.I.A. representative. The text has been revised, says the foreword, until every chapter represents the judgment of the commission as a whole.

Chapters which will be of special interest to architects are those on planning instructional features and auxiliary facilities, mechanical and service facilities, safety, materials and construction, light and color, furniture and equipment. Plans and illustrations are numerous enough to be of real value.

SCHOOLS IN BRITAIN

The Modern School. By C. G. Stillman and R. Clastle Cleary. The Architectural Press (13, Queen Anne's Gate, London S.W. 1, Eng.), 1949. 7 by 9 in. 152 pp., illus. 21s.

To open this book is to realize, with a pleasant shock, the tremendous progress school architecture has made in the past century or so. For the authors have begun their discussion with a background chapter including illustrations of oldtime schools, and have dropped in here and there throughout the book other photos dating back to the

(Continued on page 30)

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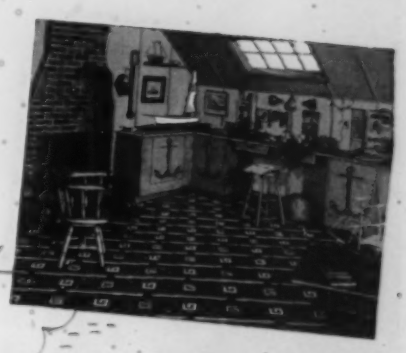

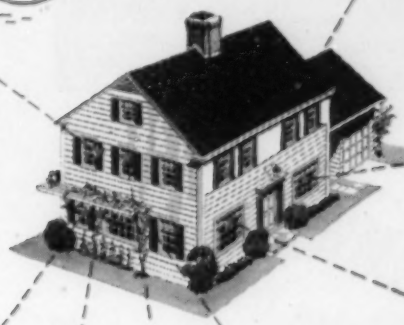

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REQUIRED READING

(*Continued from page 28*)

turn of the century. Unfortunately, as the authors point out, many of these schools are still in use, despite their overcrowded and poorly lighted classrooms, and their completely outdated arrangement.

Messrs. Stillman and Cleary, both architects, have surveyed the school field from end to end, and have given us in this book a comprehensive analysis of not only the problems to be solved and the needs involved, but the progress made to date. They discuss in detail the legislation governing school building in England; they discuss environment, the classroom unit, special instruction rooms, assembly halls, gymnasiums, construction trends, lighting and ventilation; and above all they have been generous with their illustrations, including dozens of photos of schools in various parts of the world, and innumerable plans.

HOSPITAL EQUIPMENT

General Electric Hospital Handbook for Architects and Engineers. General Electric Co. (Schenectady, N. Y.), 1949. 11 by 8¾ in. 277 pp., illus. $19.75.

Here is a book devoted exclusively to the complicated electric equipment needs of the hospital. Although prepared by the various departments of General Electric, and concerned primarily with the products manufactured by that company, it contains much basic planning information for the selection and installation of electric equipment. Floorplans are based largely on the recommendations of the United States Public Health Service. Architectural consultant for the book was Theodor K. Rohdenburg of the Columbia University School of Architecture.

The text is divided into 10 sections: x-ray, kitchen, appliances, lighting, chemical (surfacing material), clocks, air conditioning and refrigeration, power distribution, secondary distribution systems for light and power, wiring systems. Most of the sections contain general design data as well as product specifications.

A supplementary pamphlet, "Buyer's Guide for Hospital Equipment Using Radiant-Energy Sources," inserted in the back cover of the volume, lists light, infrared, ultraviolet and germicidal equipment available from well over a hundred manufacturers.

ARCHITECTURAL

RECORD

IN CLOISTERED HALLS OR DRAFTING ROOMS . . .

"YOU must remember that our function and objective is to train men to be *architects*, not mere draftsmen to be exploited by plan-factory operators."

"I didn't hire that chap to conduct seminars on the philosophy of esthetics in there; we've got to get out those working drawings and he can't either draw straight or think straight."

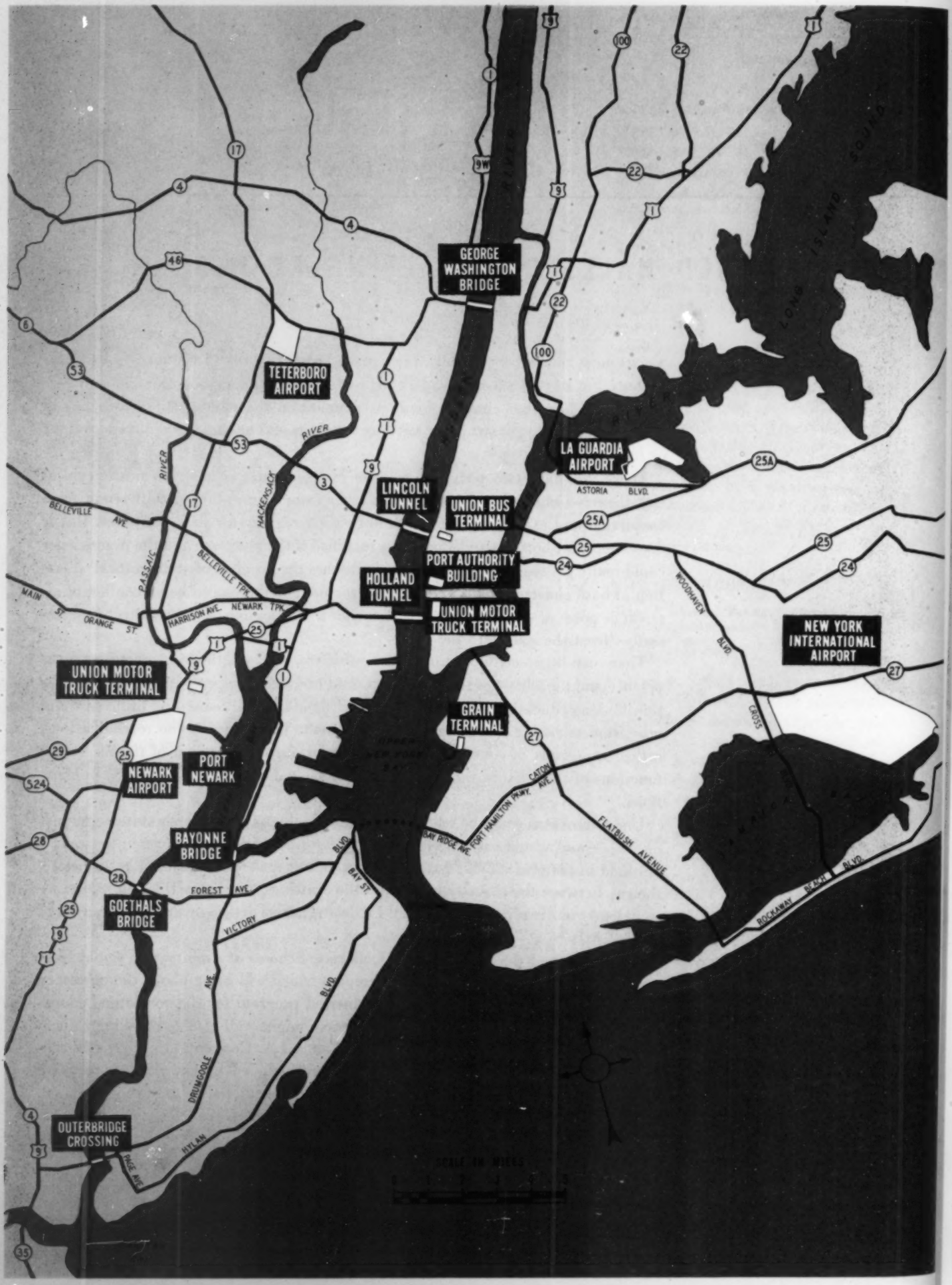
There you have two points of view — exaggerated, perhaps, but not untypical statements — one from a professor, the other from a practitioner. Both speak from conviction and experience, and both have good reasons for their attitudes. But it does seem that both attitudes could be modified if the professor and the practitioner could really get together and objectively discuss the problem of architectural education in both cloistered halls and drafting rooms. For there need be no conflict of interest or point of view when both realize that the education of the architect is necessarily "from the college to the grave."

There can be no conflict in objective, which is, after all, the ever-increasing competence and usefulness of the profession. And certainly the program and method for this life-long education of architects can and should be worked out by professors and practitioners sitting down together — and soon. There need be no recriminations, rather an agenda of constructive recommendations, a discussion of the respective functions of the schools, the offices, the professional organizations and the publications.

Understandings could be reached that would eliminate the harsh statements just quoted — and would ease the jolt to the young hopeful graduate when he seeks a foothold in his profession. Mutual understanding then will bridge, or rather close, the gap between the cloistered halls and the drafting-galleys. (In this connection we commend your reading Sidney Wahl Little's vigorous article in the May Journal of the A.I.A.)

The A.I.A. and the Association of Collegiate Schools of Architecture would seem to be the logical initiators of the conferences which will bring about the necessary understanding and the subsequent coordinated program for the continuing education of architects. The preliminary conferences might well result in making Education, with a capital E, the major theme of an A.I.A. Convention — not only academic or school education but adult and continuous education. The far-reaching and stimulating effects of such convention emphasis can hardly be over-estimated. When, if and as both cloistered halls and drafting rooms realize they must be coordinated and integrated in one continuing and never-ending process, the profession will be really competent to be "of ever-increasing service to society."

Kenneth K. Stowell
EDITOR


GEORGE WASHINGTON BRIDGE
TETERBORO AIRPORT
LINCOLN TUNNEL
UNION BUS TERMINAL
PORT AUTHORITY BUILDING
HOLLAND TUNNEL
UNION MOTOR TRUCK TERMINAL
LA GUARDIA AIRPORT
NEW YORK INTERNATIONAL AIRPORT
GRAIN TERMINAL
UNION MOTOR TRUCK TERMINAL
NEWARK AIRPORT
PORT NEWARK
BAYONNE BRIDGE
GOETHALS BRIDGE
OUTERBRIDGE CROSSING
HUDSON RIVER
EAST RIVER
LONG ISLAND SOUND
HACKENSACK RIVER
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MAIN ST.
ORANGE ST.
HARRISON AVE.
NEWARK TPK.
BELLEVILLE TPK.
WOODHAVEN BLVD.
CROSS
CATON
FLATBUSH AVENUE
ROCKAWAY BEACH BLVD.
FOREST AVE.
VICTORY BLVD.
BAY ST.
DRUMGOOLE
HYLAN
PAGE AVE.
SCALE IN MILES

Photos Courtesy The Port of New York Authority

Aviation was still in its infancy when the state legislatures of New York and New Jersey set up the Port of New York Authority in 1921, but the Authority nonetheless was directed to provide facilities for the handling of aircraft. The bi-state agency has complied in good measure, most spectacularly with the new New York International Airport, opened a year ago (pp. 86–87). Right: the interim Terminal Building at International proudly bears the Port Authority seal

PLANNERS OF AMERICA'S LARGEST PORT

The Port of New York Authority is a highly specialized regional planning agency employing 300 architects, engineers and draftsmen

ONE of the knottiest of all regional planning problems is the integration of transportation facilities in a major harbor area spreading across a state boundary. The vast and sprawling port of New York years ago became such a problem for the two states between which it lies — New York and New Jersey. In its early days it was the cause of frequent squabbles between the states, one so sharp that New Jersey actually mobilized troops to march against New York. Then in 1834 a treaty was drawn up to settle the difficulties and all was serene until the first part of the present century. By 1917, however, harbor lighterage rates had become such a serious issue between the states that it was obvious something more must be done. A survey of the port's needs was conducted under the direction of the two state legislatures and the two governors, and a detailed report was published, recommending the setting up of a bi-state agency to handle the port's development and welfare. The 1834 treaty was supplanted in 1921 by a new compact which created the Port of New York Authority and vested it "with full power and authority to purchase, construct, lease, and operate any terminal or transportation facilities" within the port district. By 1922 the new agency had submitted a comprehensive plan of regional development which was promptly adopted by the two legislatures.

"To purchase, construct, lease and operate any terminal or transportation facilities" within the huge New York port area is a tall order. Bridges and tunnels, airports, grain and freight terminals, and the eternal struggle against the problem of New York's traffic — these are some of the jobs falling within the Port of New York Authority's jurisdiction. Handling the resultant mass of detail is a staff of about 2500 employees, headed up by 12 commissioners (six appointed by the governor of each of the two states concerned) who serve without pay for overlapping terms of six years each. The Authority is a corporate, self-supporting agency — and a large-scale business venture. In the past 27 years it has sold $567,000,000 of revenue bonds on its own credit; it has built, or currently has under construction, $300 million worth of the transportation facilities which it was created to build and maintain.

Most of the projects shown on the next 10 pages were designed by the Port Authority's own large staff of architects and engineers. Heading up the design departments are: John M. Kyle, Chief Engineer; Rudolph F. Schaefer, Engineer of Design; Walter P. McQuade, Architect; and Thomas M. Sullivan, Engineer of Airports. In addition, an Engineering Board, composed of outside consultants, serves the Authority in an advisory capacity. Board chairman is J. C. Evans, of the Authority staff; architect member is Max Foley, of the New York architectural firm of Voorhees, Walker, Foley and Smith. Engineer members are: Frederick R. Harris, Engineer; William H. Mueser, of Moran, Proctor, Freeman and Mueser; George W. Burpee, of Coverdale and Colpitts; and Ernest C. Johnson, of Gibbs and Hill.

The terminal building at New York International Airport is temporary, but boasts over 40,000 sq. ft. of space and a 2000-car parking lot immediately adjacent. Across-page: huge steel-arch hangars now under construction at N. Y. International; each has a clear span of 300 ft. and a special tail door above the sliding doors to permit entry of planes with tails as high as 62 ft.; Gordon Lorimer, Architect; Roberts and Shaffer, Engineers

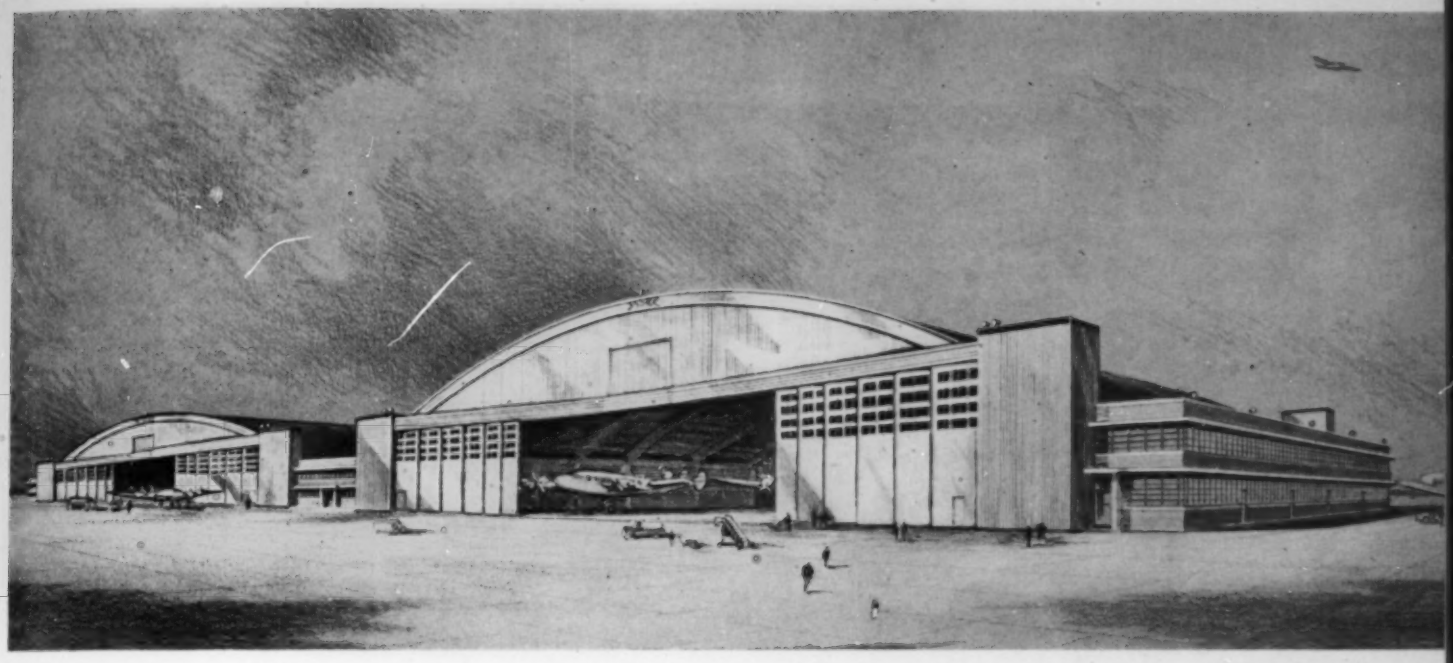
AIRPORTS—THE PORT AUTHORITY NOW HAS FOUR

As the map on page 84 shows, the Authority at present has four airports under its wing: La Guardia to the northeast of Manhattan, New York International to the southeast, Newark to the southwest, and Teterboro (acquired only last April) to the northwest. In 1948 La Guardia alone handled more than 145,000 plane movements, nearly 2,750,000 passengers, and more than 46,000 tons of cargo; Newark and New York International (the latter in operation only since last July) swelled the total to 241,449 plane movements, 3,487,392 passengers, and 108,720,516 lb. of air express and freight. Construction contracts awarded at the three airports during the year totaled $12,659,780.

Port Authority operation of La Guardia began in June, 1947. The airport at that time, of course, was in full swing, and required no immediate new construction. Progressive settling of the silt sub-surface on which it was built, however, had reached a point where seasonal high tides had on several occasions flooded portions of the runway and apron system. To correct this condition, the Authority constructed a million-dollar marginal dike around the airport and installed 1200 sand drains to drain and consolidate the underlying silt. The 2-mile dike is 28 ft. wide and at some points as high as 6 ft.

Newark Airport was taken over by the Authority in March, 1948. Like La Guardia, it was already a busy and well-equipped airport, but needed certain repairs

First permanent building at New York International is the $4,500,000 Federal Building, formally opened on July 1; three stories in height, it will house offices of the Weather Bureau, CAA, etc. Reinhard, Hofmeister and Walquist, Architects

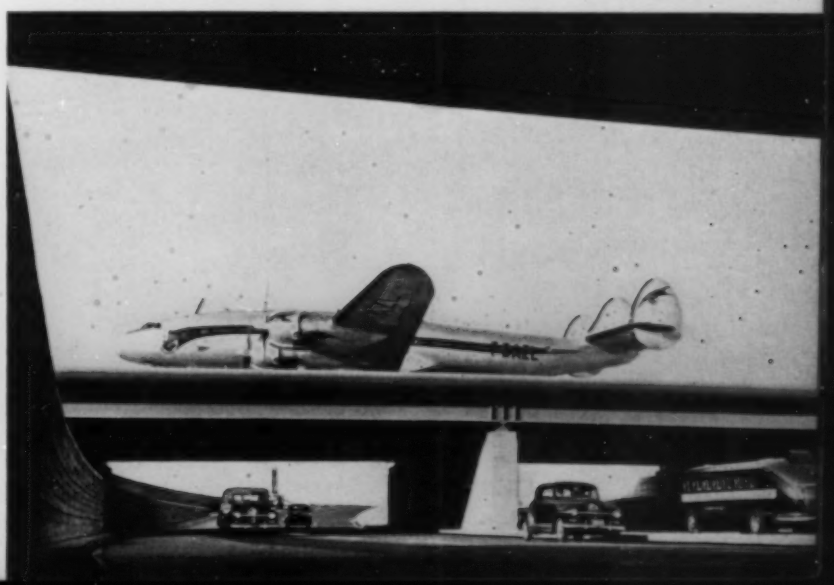


to runways and aprons. The Authority completed this work last year, rehabilitated the so-called Army Air Freight Terminal for use as an air cargo center, and is now working on a master plan for the expansion of the whole airport area. Plans also are being drawn for new terminal, hangar and other facilities.

The third airport to fall under the Authority's jurisdiction was New York International, construction of which was begun by New York City and taken over by the Authority. It was opened in July, 1948, under Authority operation, but is still far from being complete. Construction now under way includes the $4.5 million Federal Building (opposite page) which will house the 13-state regional and local offices of the United States Weather Bureau, the Civil Aeronautics Administration, and other federal services; and three mammoth steel-arch hangars, each able to accommodate four Boeing Stratocruisers. The original interim terminal building has been expanded from 17,000 to 40,090 sq. ft.; an additional 12,830 sq. ft. of space have been provided for federal inspection services; a 39,200 sq. ft. cargo building has been erected; and a 2000-car paved parking lot adjacent to the terminal building has been established. The airport now has seven runways, including the new 8000-ft. instrument approach.

The fourth and most recently acquired of the Port Authority's airports is Teterboro, in Bergen County, N. J. This 500-acre airport was purchased by the Authority last year, and taken over last April. With a new control tower and CAA operation of an instrument runway, Teterboro completes the plan for regional airport facilities specified by New York and New Jersey state legislatures in a 1947 amendment to the Port Treaty of 1921.

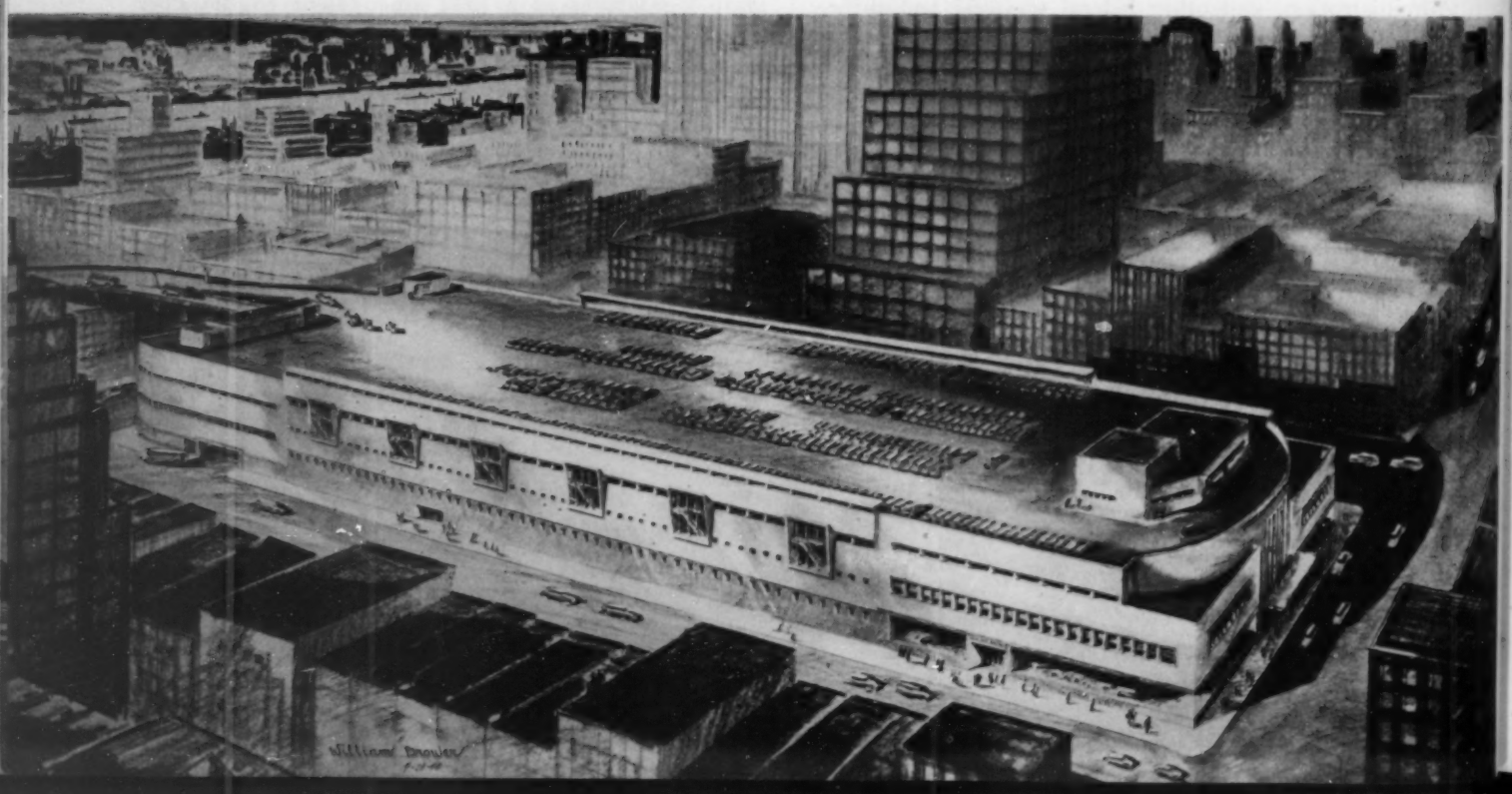
Below: 8000-ft.-long instrument runway V, N. Y. International Airport, parallels the instrument approach at La Guardia. Right: an Air France plane taxis across the new underpass at N. Y. International Airport



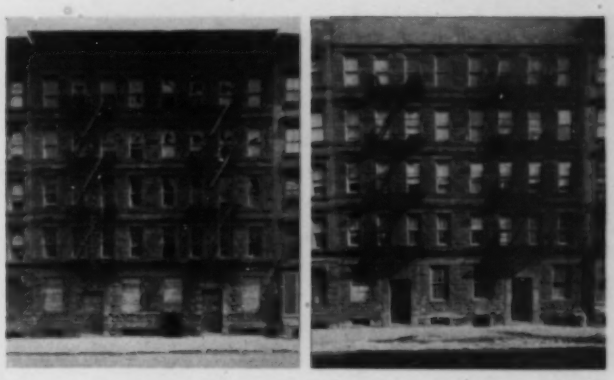
The Union Bus Terminal will occupy the entire block between Eighth and Ninth Avenues, 40th and 41st Streets, will be connected with nearby Lincoln Tunnel by an overhead ramp. Only the long-distance buses will approach the Terminal at street level

BUS TERMINAL AND OVERHEAD RAMP TO LINCOLN TUNNEL

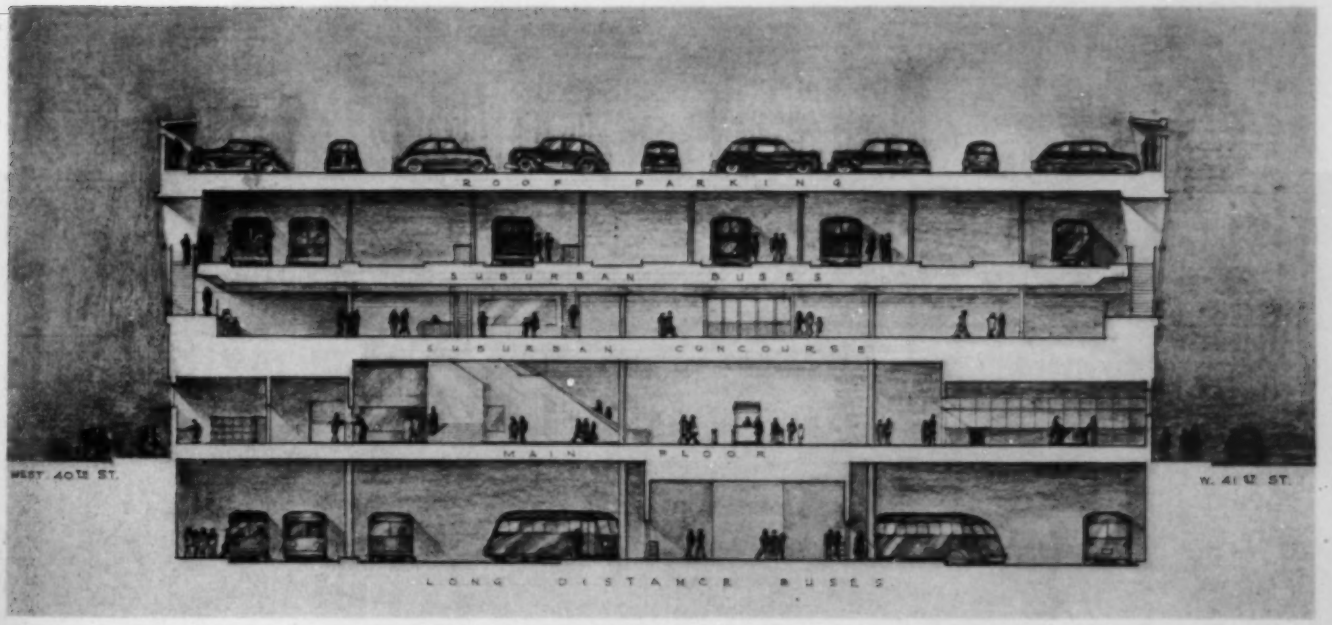
ONE of the most widely publicized of the Port Authority's recent activities is the huge new Port Authority Union Bus Terminal now being constructed in midtown Manhattan to serve the 60,000 New Jersey bus commuters and long-distance bus passengers who enter and leave the city daily. An overhead ramp will connect the terminal with nearby Lincoln Tunnel, keeping the unwieldy buses off the city streets. Long distance and suburban traffic will be carefully separated, the long distance buses using the basement level, the suburban buses the upper (see cross section opposite). Roof parking will be provided for 450 cars.



The Terminal site in October, 1948, during demolition proceedings



Relocation of the 600 residential tenants on the Terminal site proved so difficult that the Port Authority (after special enabling legislation by both New York and New Jersey) acquired several vacant buildings in Manhattan, and turned them into well-equipped apartments for 225 families. The Authority must dispose of these buildings by 1951



Long-distance passengers will reach their buses at the basement level directly from the main concourse. Suburban passengers will have their own concourse above, will load on the upper level. Right: the Eighth Avenue, or main elevation

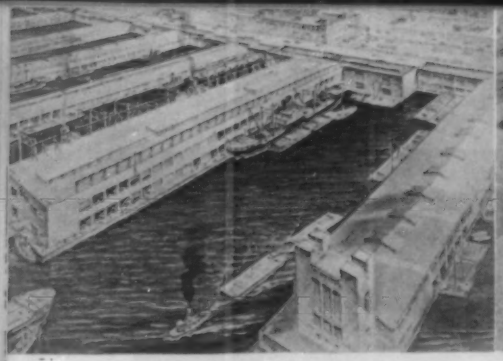
The impressive ramp shown below winds its way between New Jersey's high Palisades and the Lincoln Tunnel (entrance in center of photo), which connects midtown Manhattan with Weehawken, N. J., and links Manhattan with the main cross-country and north-south arteries. Right: the north tube of the dual-tube, four-lane tunnel, and a closer view of the New Jersey entrance

APPROACHES TO TUNNELS AND BRIDGES

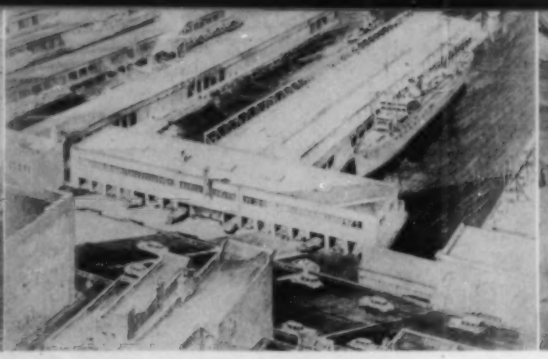
ONE of the Port Authority's chief concerns in the operation of the two tunnels and four bridges now under its care is the provision of adequate approaches to handle a volume of traffic which in 1948 totaled 47,041,975 vehicles. The Authority already has spent $63 million on such approaches, and has another $10 million worth under construction. In addition, the agency is cooperating closely with the various highway authorities in order to integrate its crossings with the through parkway systems.

The Authority's present six crossings are: the Holland and Lincoln Tunnels under the Hudson River; the George Washington Bridge spanning the Hudson; the Outerbridge Crossing, and the Bayonne and Goethals Bridges connecting New Jersey and Staten Island (see map, page 84). All are inter-state.

Top of page: the George Washington Bridge (foreground) will be connected directly with the main roads to New England when the second of the two tunnels indicated by the superimposed lines has been completed and the proposed cross-Bronx Expressway has been built. Right: the new Holland Tunnel exit viaduct, Jersey City



NEW PIER 36 (CARGO), HUDSON RIVER

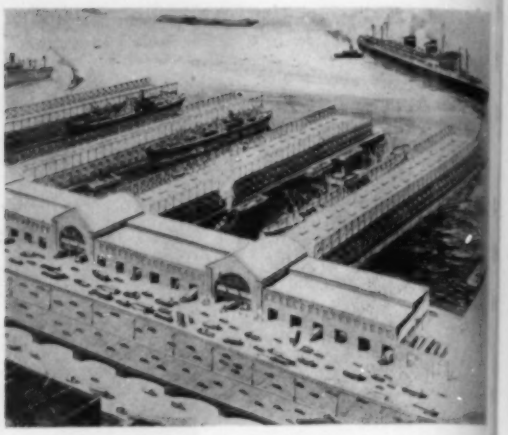


NEW PIER 40, HUDSON RIVER

MODERNIZED PIER 45, HUDSON RIVER

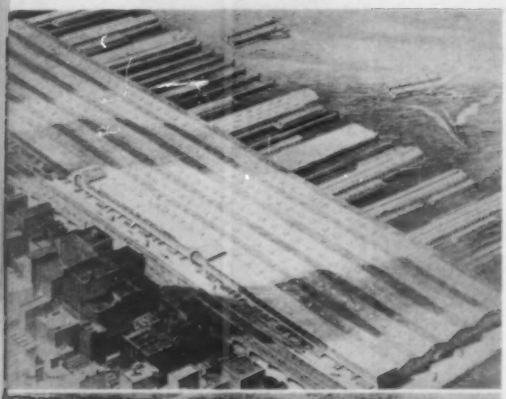
PROPOSED NEW YORK HARBOR PIER DEVELOPMENT

In 1947 the Port Authority submitted to Mayor William O'Dwyer of New York, at his request, a detailed plan for the development of the city's waterfront. This plan was shelved a year later when the Board of Estimate voted to adopt instead a city-financed program proposed by the Department of Marine and Aviation. Last December, however, three months after the Board's vote, the Mayor requested the Port Authority to review its proposal and re-submit it. The revised proposal also, shown on these two pages, has been rejected by the city.



MODERNIZED PIERS 60 AND 61, HUDSON RIVER (PIERS 53, 54, 56, 58 SIMILAR)

NEW PIER 37, EAST RIVER



Above: two views of proposed Union Produce Terminal, extending from present Pier 22 to Pier 30, Hudson River. A Union Railway Carfloat Station would adjoin the Terminal at its southern end (right in lower photo)

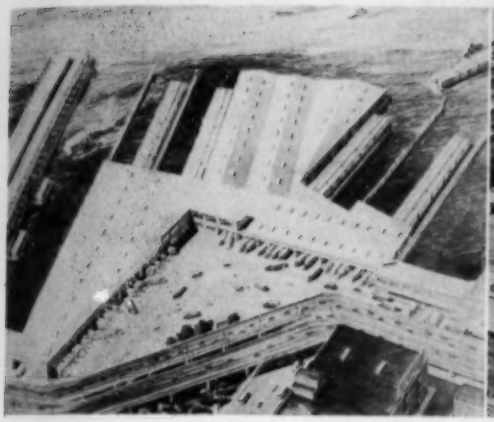
THE Port Authority's proposal covers the financing, constructing, rehabilitating and operating of city-owned piers and other waterfront facilities. It hinges in large part on the relief of present waterfront congestion by providing off-street parking for trucks. It would increase the number of Class A shedded berths from 129 to 136, and would build a Union Produce Terminal and four carfloat railway stations, three of the latter on the Hudson River and one on the East River.

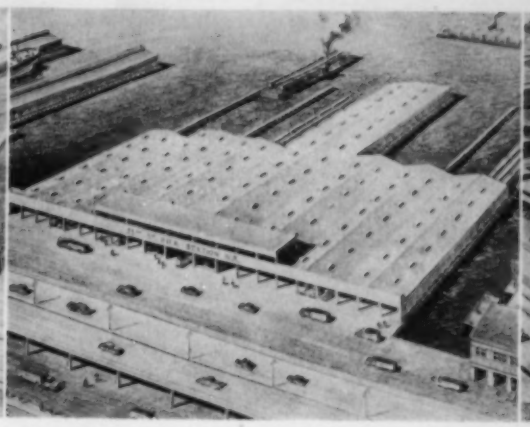
The accompanying sketches show a few of the highlights of the Port Authority's plan, including the proposals made for the New Jersey waterfront at the request of Governor Alfred E. Driscoll.

PRESENT PIER 50, HUDSON RIVER

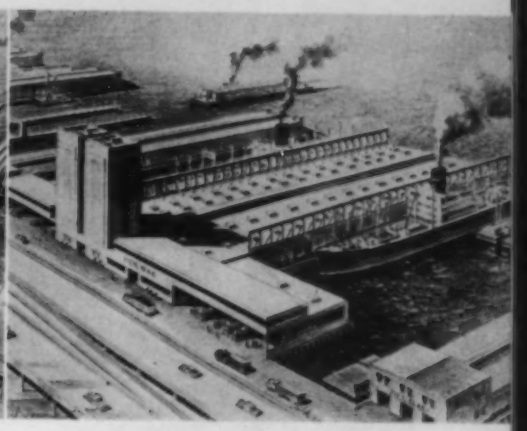
PRESENT PIER 51, HUDSON RIVER

PRESENT PIER 58, HUDSON RIVER

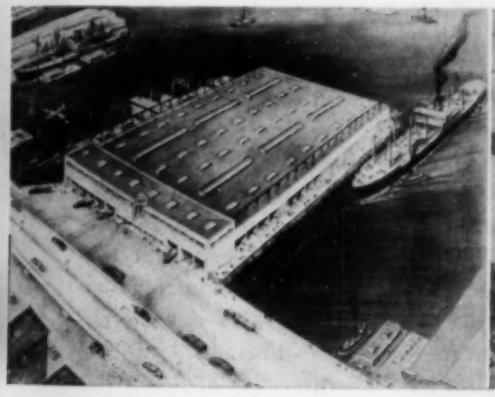


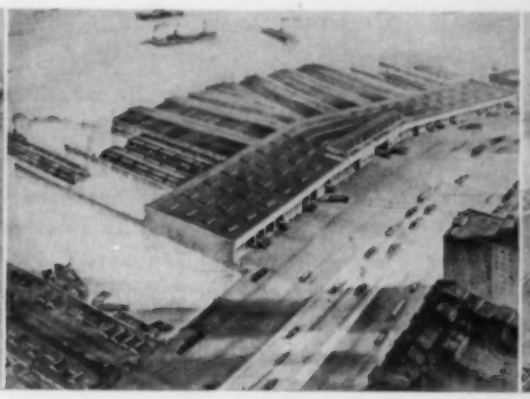


PROPOSED UNION RAILROAD CARFLOAT STATIONS AT 23RD AND 33RD STREETS, HUDSON RIVER

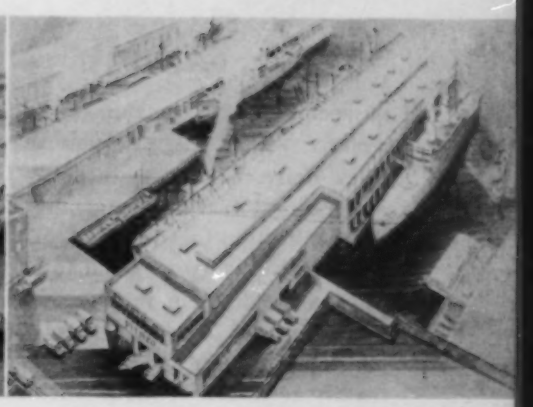


NEW PIER 79, HUDSON RIVER





NEW PIER 9, EAST RIVER (LEFT) AND PROPOSED UNION RAILROAD CARFLOAT STATION, EAST RIVER



NEW PIER, ATLANTIC AVE., BROOKLYN

NEW JERSEY PIERS

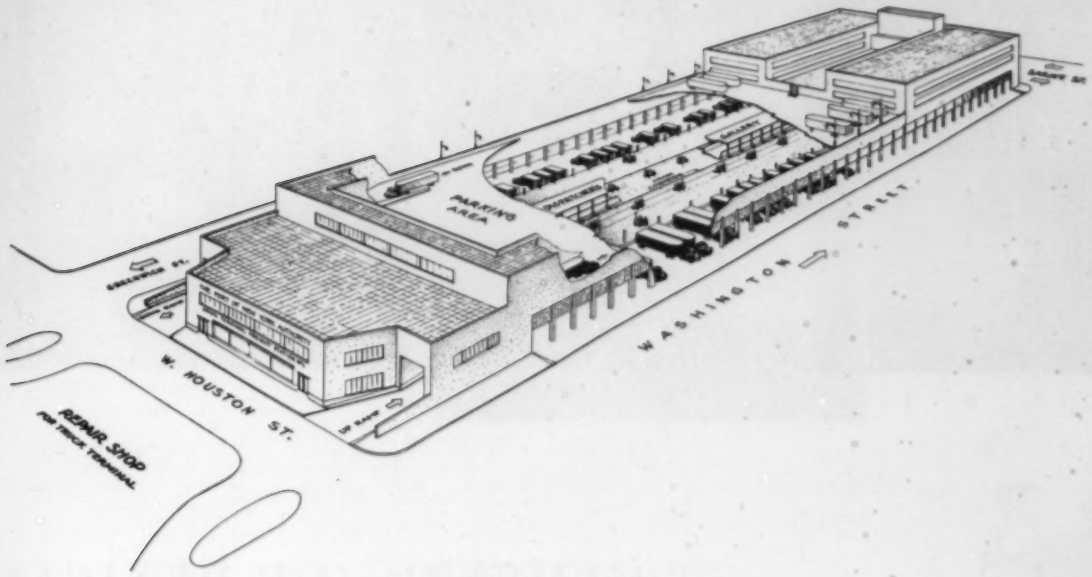
Upper left: two proposed new piers for Jersey City. Upper right: the site proposed for immediate development, Jersey City. Lower left: Jersey waterfront, looking up Hudson River, Jersey City in foreground, the site proposed for the new marine terminal. Lower right: a proposed long-range six-pier development for Jersey City, incorporating the two piers shown above

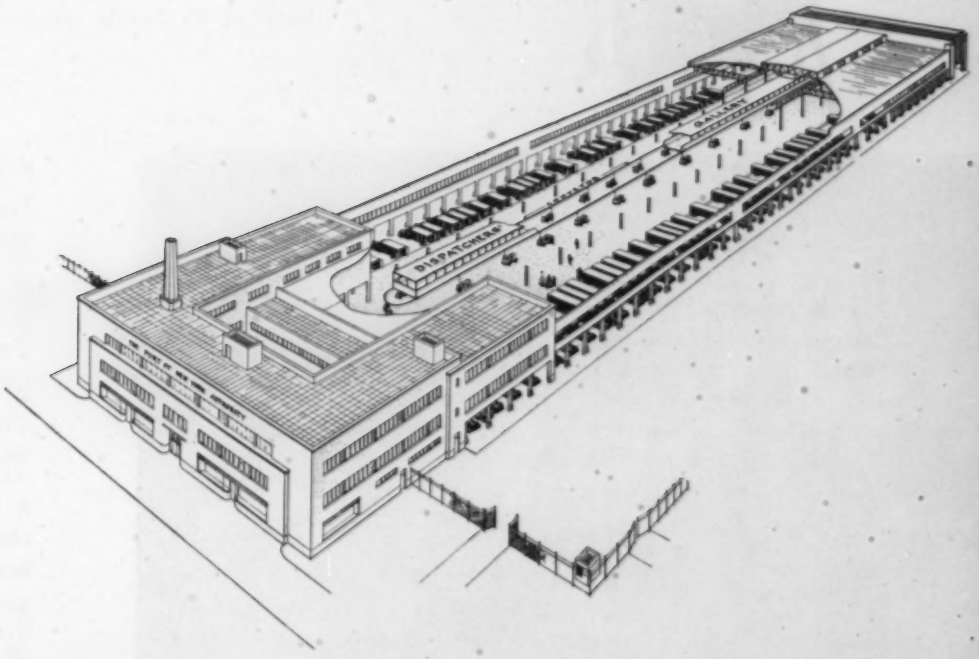
TRUCK AND GRAIN TERMINALS

To accommodate the thousands of tons of freight and produce which pass through the New York area by truck daily, the Port Authority currently has under construction two Union Motor Truck Terminals, one in Manhattan (above), the other in Newark, N. J. (opposite). The two — said to be the world's largest — will be much alike in plan, featuring off-street bays for the trucks, long freight platforms, and roof parking for complete tractor-trailer units. Both will be readily accessible to main truck routes.

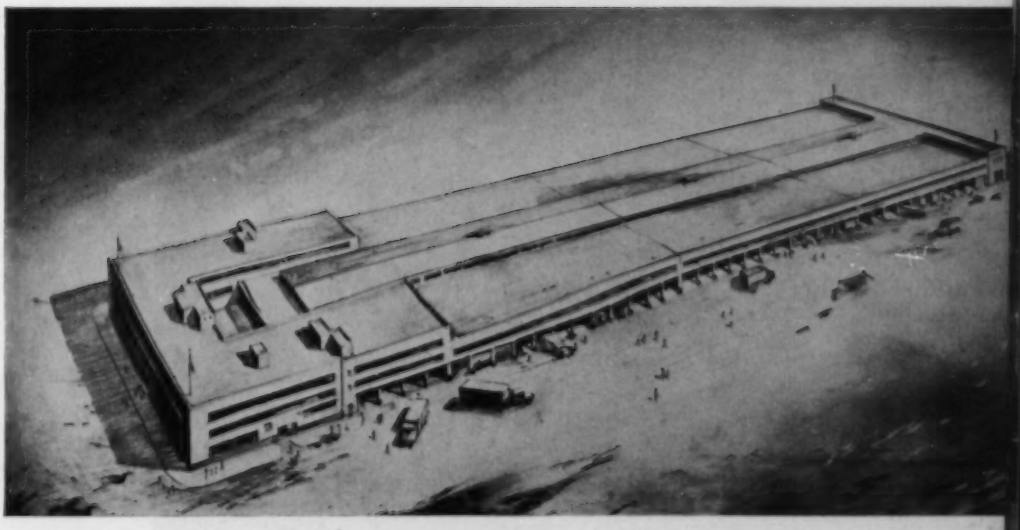
The Port Authority Grain Terminal on Gowanus Bay, Brooklyn (below) was transferred to the Port Authority by the State of New York in 1944. Since then it has been completely rehabilitated, and augmented by a new grain pier and gallery, opened for use in January, 1948. The new gallery is located on the pier, permitting the loading of grain direct from the elevator to the ships. It is equipped with an electric thermometer system in the storage bins. In 1948 the Terminal handled 3,732,000 bushels.

Below, left: loading grain at the Port Authority's new pier at the Gowanus Bay Grain Terminal. Below, right: air view of the Terminal





The Manhattan truck terminal (above) will be 1000 ft. long, 160 ft. wide, with off-street bays for 144 trucks. It will be able to handle over 2000 tons of freight a day



The Newark truck terminal (right and center) will be 1158 ft. long, 200 ft. wide, with off-street bays for 160 trucks. Its island freight platform will be 1000 by 100 ft. in size, equipped with an overhead chain conveyor serving both sides. Daily freight capacity, 2500 tons

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MEMENTOS OF MEXICAN

from the Post-Convention Tour

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1. Hotel del Prado, Mexico City, the comfortable, modern headquarters of the peregrinating professionals

2. The architectural sightseers are briefed on historical backgrounds before entering the Cathedral, Mexico City

3. Boatloads of gay architects are taken for a ride on the placid waters at Xochimilco, the famous "floating gardens"

4. Looking over the tiled roofs to the parochial church at picturesque, colorful Taxco from the terrace of the Rancho Telva

5. The enriched facade of the church at Taxco glows golden-red in the light of the setting sun

6. The harbor of Acapulco, landlocked and surrounded by palms, hotels, and sandy beaches where swimming, sunning, fishing and relaxing are the order of the day

7. At the Colegio de Niñas in Mexico City, the peripatetic party is enlightened and amused by the erudite Professor Federico E. Mariscal

8. Diego Rivera's historical murals on the National Palace courtyard walls form the background for a group of admiring architects

9. Some of the party pause to pose on the stairs which are flanked by Rivera's monumental allegorical murals

10. After visiting the Toltec pyramids of Teotihuacan, the crowd feasted and fraternized with their Mexican hosts in the great cave

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BEAUTY AND HOSPITALITY

of the American Institute of Architects, March 19–27, 1949

Bob Bailey Photos

1. El Hotel del Prado, Ciudad de Méjico, es el confortable y moderno cuartél general de los peregrinadores profesionales

2. Los observadores de arquitectura son brevemente orientados acerca del pasado histórico antes de entrar a la catedral, Ciudad de Méjico

3. Botes cargados de joviales arquitectos son paseados sobre las quietas aquas del Xochimilco, los famosos "jardines flotantes"

4. Mirando sobre los tejados a la Iglesia en el pintoresco y colorido Taxco desde la terraza de la Rancho Telva

5. La adornada fachada de la iglesia en Taxco resplandece a la luz del sol poniente

6. El puerto de Acapulco cercado de tierra y rodeado de palmas, hoteles y playas arenosas donde la natación, la pesca y el descanso son la orden del dia

7. En el Colegio de Niñas en la Ciudad de Méjico, el grupo peripatético es instruido y a la vez divertido por el erudito Profesor Federico E. Mariscal

8. Los murales históricos de Diego Rivera sobre las paredes del patio en el Palacio Nacional sirven de fondo al grupo de arquitectos aficionados

9. Algunos del grupo se detienen para posar en las escaleras, las cuales estan flanqueadas por los monumentales y alegóricos murales de Rivera

10. Despues de visitar los pirámides de Toltec en Teotihuacan los concurrentes festejaron y fraternizaron con sus huéspedes mejicanos en la grande cueva cercana

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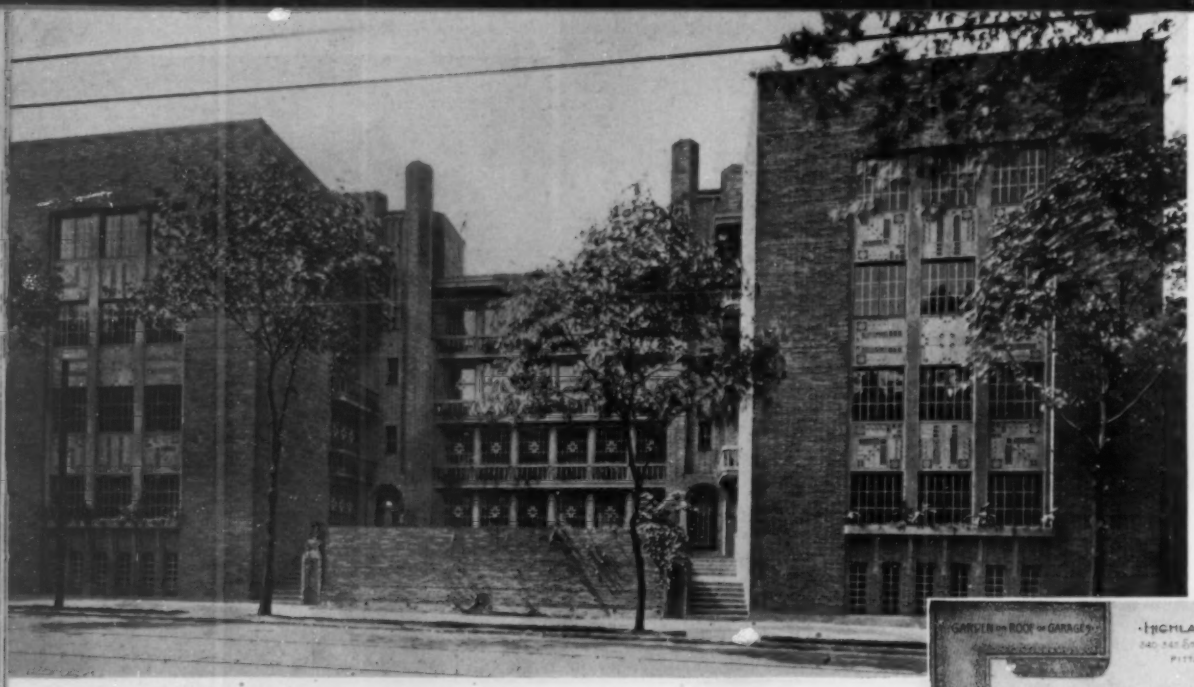
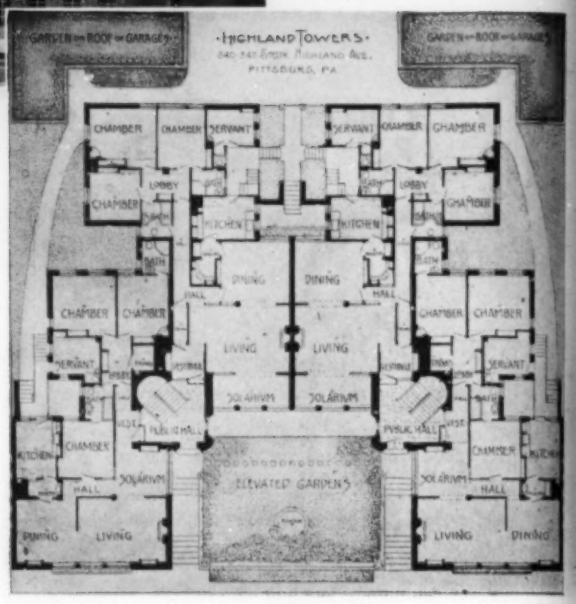




PITTSBURGH REDISCOVERS AN ARCHITECT PIONEER, FREDERICK SCHEIBLER

From a paper by John Knox Shear

At a time when contemporary architecture is threatened with conventional thinking, which produces clichés instead of reasoned original work, it is refreshing to dig back among the early pioneers. There were a good many more of them than the choice few who have been so widely publicized. Frederick Scheibler of Pittsburgh, for example, had scarcely been heard of until an associate, Robert W. Schmertz, aroused the interest of John Knox Shear of the Carnegie Institute of Technology Department of Architecture and a report was written in *Charette*, Pittsburgh's Journal of Architecture.

"In 1888 Fred Scheibler, then 16 years old, left the old Pittsburgh High School, to go as an apprentice into the office of Henry Moser." There, for 10 years, he worked, asked questions, listened.

For 50 years since then Scheibler has produced "group cottages" (his most frequent assignment) and apartment houses, individual homes, and other works of architecture, all in a manner broad and original and still full of interest today.

The "Old Heidelberg Apartments" built before 1900 carried the naturalistic ornament of the architect's early "half-and-half" period. He had the usual battles with contractors and workmen to get the new ornament executed. Once he had to tell the builder he "had found a man" who could do for $100 a detail in concrete that had been declared flatly "impossible," and when the offer was accepted he climbed the scaffold himself "and in two hours made a hundred dollars and did not even get his hands dirty."

The Highland Towers Apartments at 340 South Highland Avenue, as seen in accompanying photographs, are quite an astonishing creation for the year of 1913. Although the use of small panes and "art glass" in the windows, and the free "diaper" treatment of spandrels, is reminiscent of the early date, yet the detailing is remarkably contemporary, with frames pushed tight against the ceiling and the round columns, and the effect is of a pleasant enrichment to an orderly, and strongly plastic, structure.

Back in 1913 Scheibler was already using balconies as aids to open planning, and achieving smart detailing plus vitality of texture that has renewed interest today. Highland Towers, 340 S. Highland Ave.

The whole is more convincing today than many an "advanced" building of the intervening years.

Among Scheibler's many group housing schemes before the first World War, the only one shown here is the Vilsack row, erected in 1912, a date which, in the words of Mr. Shear, "is difficult to believe." Not only is it true, as he says, that "the alternation of blank wall and great glass areas, the simple slab-form roofs, the slight canopy supports, and the clean lines of the well proportioned shapes are far in advance of their time," but also it is true that they escape their time altogether as good architecture regardless of date. Such treatment would come as a fresh innovation again today. And the plans, too, carry today's articulation.

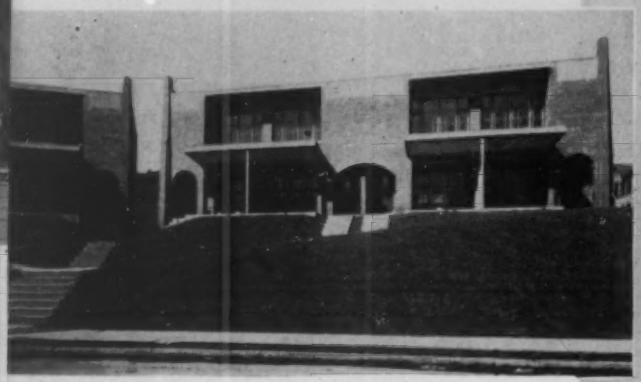
Scheibler more often produced work like the "Hamilton Cottages" of the same date, on Beacon Street, in the East End, of more conventional general type but unmistakable distinction. "Red brick, casement windows, low eaves ramble expressively and efficiently through their environment of trees and grass and shrubs," writes Shear. " . . . In their scale, warmth, and expression of comfortable habitation they are rivalled perhaps only by the Chatham Village group of much later date and greater cost."

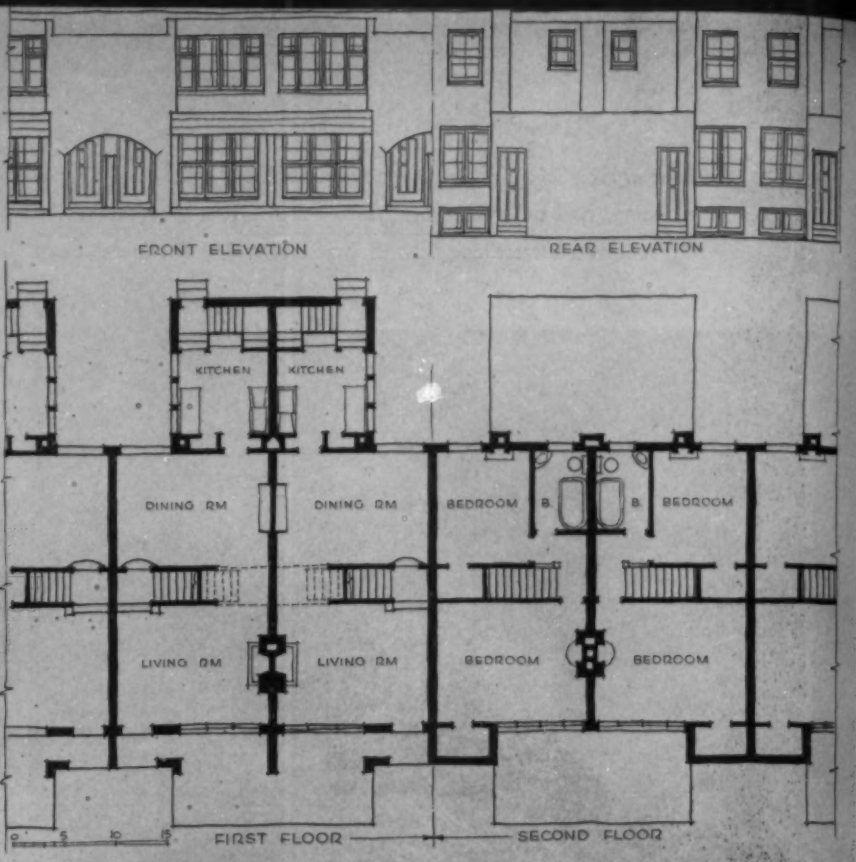
"'Meadowcots,' another group on King Street, each unit modified by site and building budget and hence varying in appearance and quality, are consistent in simplicity, good scale, and honest use of materials . . . and likely to be long remembered. . . ."

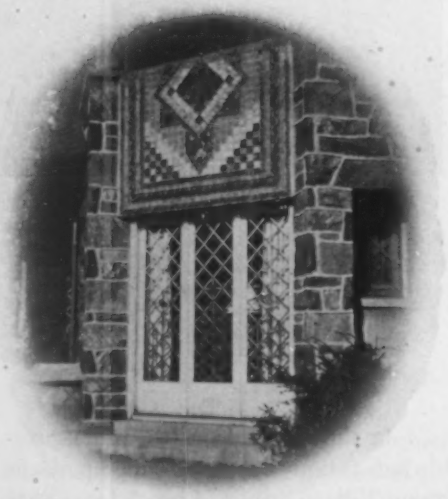
Scheibler, like Frank Lloyd Wright, was influenced by the Japanese — through direct association with Kantero Kato, son of the then Postmaster-General of Japan and a theatrical designer of great ability. In consequence, and with Kato's collaboration, Scheibler always "took charge of all the visual aspects of his work. Sculpture, color, flat decoration, and landscaping are an integral part of his buildings and to him perhaps their most fascinating challenge." Especially noteworthy was the "delicacy of his gardens."

Occasionally Scheibler's naturalism created results

Among numerous "group cottages" this "Vilsack row" on Jancey Street in the East End (cheaply built and now deteriorated) shows perhaps the most daring and satisfactory innovation. Other such groups, less striking, are fine "in scale, warmth, and expression of comfortable habitation"



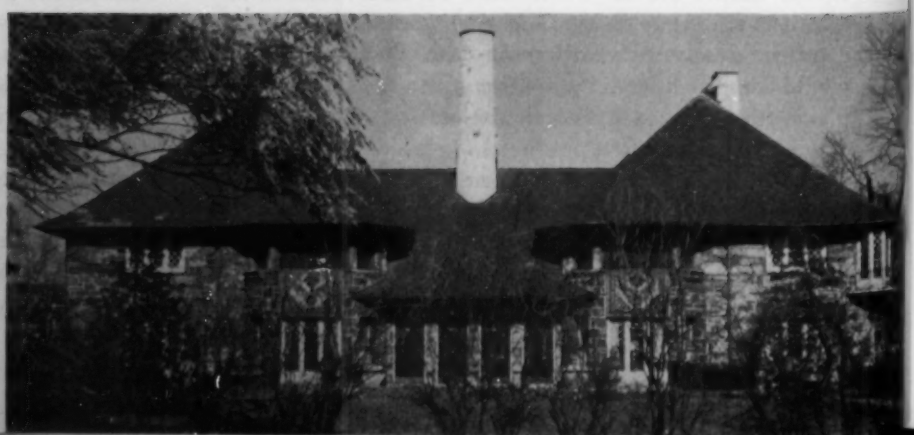




which now look amusing, like the tile "rugs" draped over the balconies of the "Parkstone" duplex on Penn Avenue (illustration at left). At least, unlike some later fantasies on the part of others, they have been harmless.

Fred Scheibler, now nearly blind, living in a small cottage with his charming wife, is building no more. His only regret is said to be "that I didn't take on a young man who could keep these things going."

The "Parkstone Duplex" on Penn Avenue, built 1919, expresses the times, and the naturalism of the tile "rugs" is today amusing; yet the house shows the architect's strong hand



BUDGET HOUSE NEAR PITTSBURGH

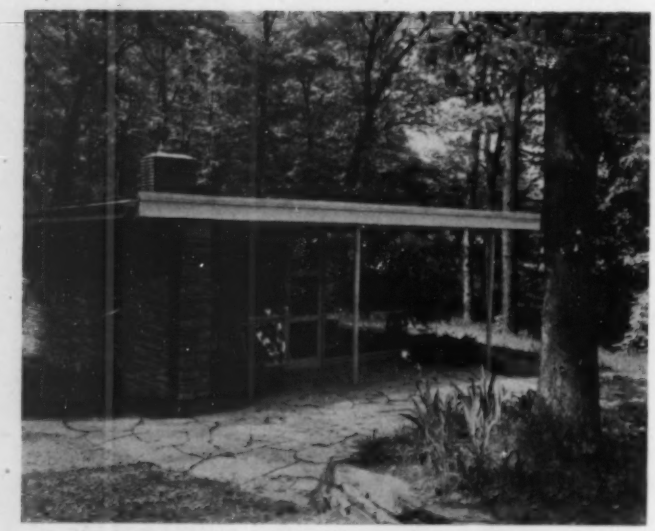
Residence of Mr. and Mrs. Robert Kirkpatrick, Bradfordwoods, Pa.

Mitchell & Ritchey, Architects

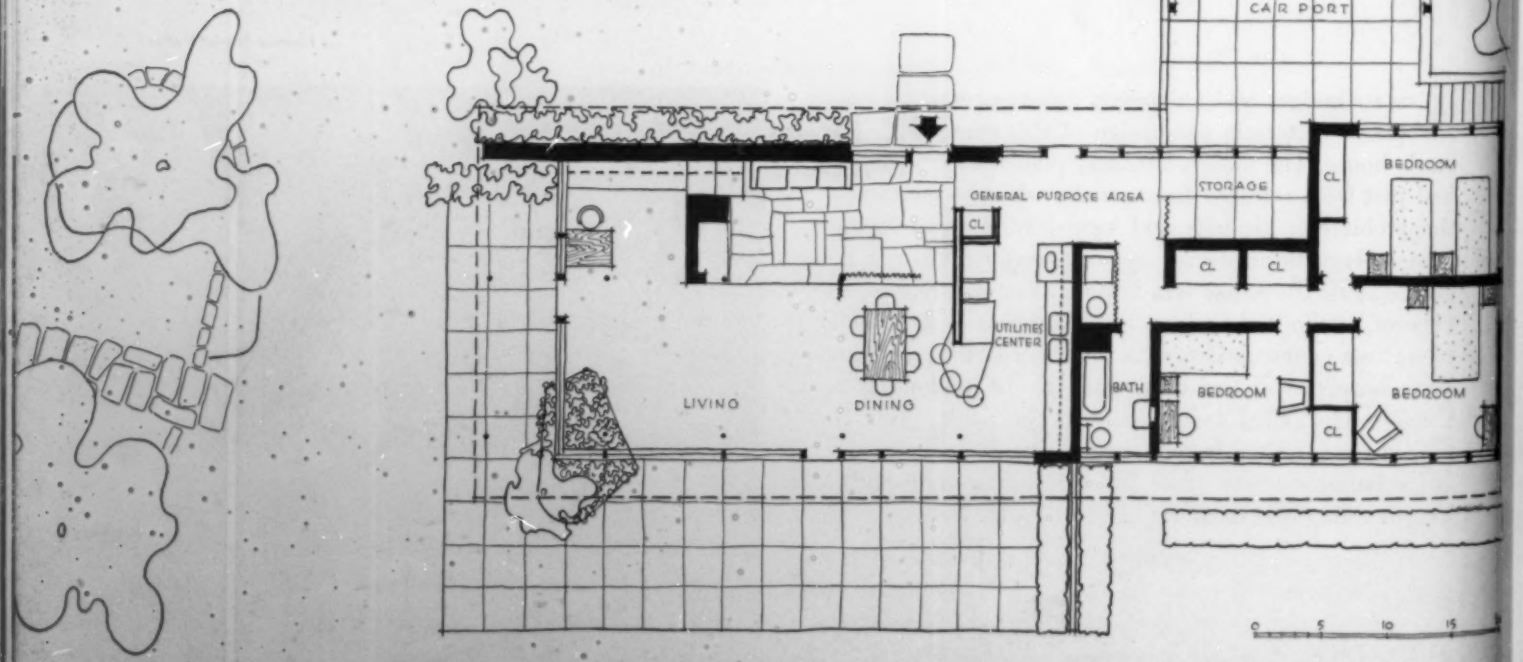
Newman-Schmidt Studios

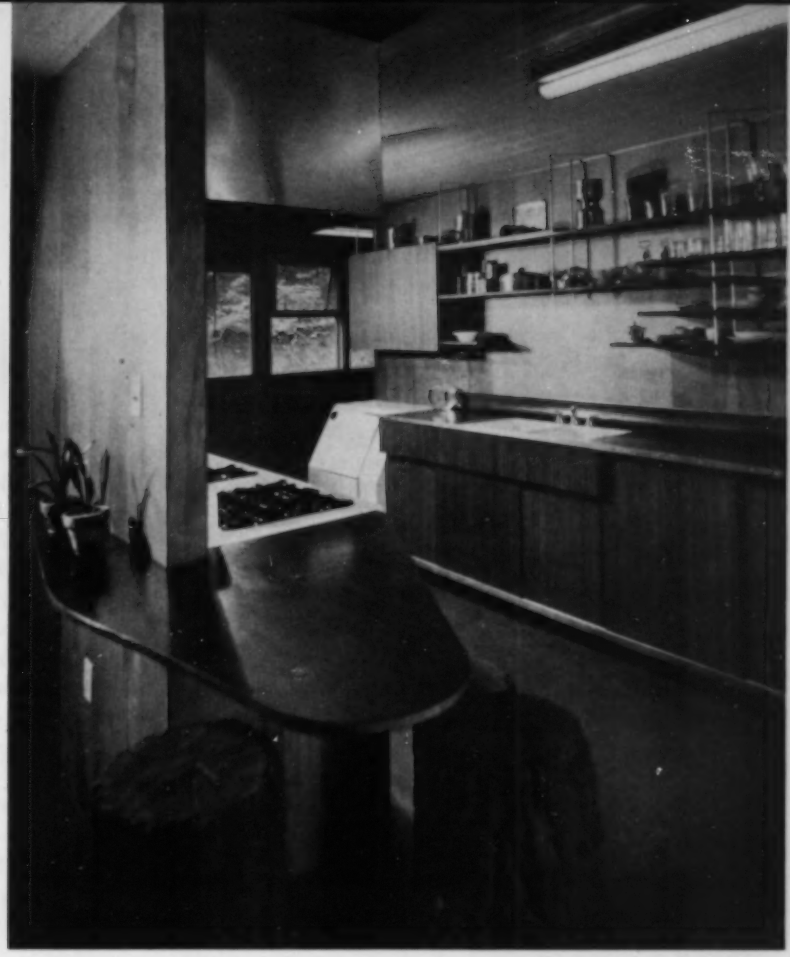
A TIGHT budget and an urgent housing problem were prime factors in the design of this small Pennsylvania house. The owner, an Army pilot during the war, had just been released from service when he contacted the architects; his wife and two children were living separately with relatives, and the family could not be united until the house was finished. For this reason, in view of the limited budget, the house was designed for two-phase construction, with one bedroom to be built immediately and the other two to be added later. Bunks were added temporarily in the utility area to take care of the children in the interim.

Native stone was used for the rubblestone walls. The fir siding is in natural finish.



Single plate glass was used in the living areas, with the details developed so as to provide for future double glazing if desired, but the radiant heating has proved very satisfactory with the single glass even in the coldest weather. Interior walls are stone and birch plywood; floors are concrete and flagstone; ceilings are plywood, painted a chartreuse yellow; trim is ivory white





The only special requirements laid down by the owner were a small breakfast bar opening from the kitchen (right) and a general purpose and play area off the kitchen where the children can play under supervision (upper photo, opposite page)

Newman-Schmidt Studios

NATION'S BUILDERS

ONE sure topic of conversation and speculation in the building field is "Where are costs going — and how far?" Because builders and contractors are dealing with costs, labor and materials every day, F. W. Dodge Corporation conducted a "grass roots" survey * by mail among the nation's builders to get their answers to that and other pertinent related questions.

Adjustments which have taken place in the building industry since the peaks in dollar volume and costs were reached last year are reflected in the results given here. As might be expected, the picture differs slightly from one region to another, but in general builders reported that:

1. *Costs* of single-family houses and large-type buildings declined about 5 per cent between May 1 of last year and May 1 of this year. Costs continue their downward trend, and most builders expect them to decline until next November to a point 8 per cent below the May level.

2. *Materials*, one is led to believe on the basis of the builders' reports, are by no means entirely out of the tight supply category. While about three out of ten builders report adequate supplies of all materials and equipment, the remaining 70 per cent are still hampered in their operations by short supplies of one or more of the metal or metal product items, or one or more of the masonry materials, or one or more of the lumber and millwork items. About 25 per cent of the builders report that no materials continue at peak price levels or continue to rise, but the remaining 75 per cent find one or more of the masonry items, or one or more of the metals or metal products, or lumber and millwork items still at the peak price level or going higher.

3. *Labor productivity* of on-site workers has improved by 10 per cent in the past year, in the judgment of a large majority of builders, and most of them expect further improvement in the productivity of both skilled and unskilled workers during the remainder of the year.

4. *Lump-sum contract letting* has returned as general practice to replace the preponderant war and immediate postwar period practice of cost plus fixed fee contracts. Seventy-two per cent of the builders reported that three quarters or more of their current work is being done under lump-sum contracts.

The questions asked, summaries of opinions, and important regional variations follow:

1. In the area of your operations, are building costs higher or lower than they were twelve months ago?

(a) Single-family houses

Analysis: 74.80 per cent of those answering the question reported costs *lower*. The median percentage decline, including those answering *higher*, *lower* and *same*, was 5 per cent. The extremes were reported by the Mountain States where 46.14 reported costs *lower* with the median there showing no change, and the Pacific States where 81.40 of those answering reported costs *lower* with the median decline reported as 10 per cent.

(b) Large-type buildings

Analysis: 77.28 per cent of those answering the question reported costs *lower*. The median percentage decline, including those answering *higher*, *lower* and *same*, was 5 per cent. The extremes were reported by the Mountain States where only 49.5 per cent reported costs *lower*, with the median indicating a decline of 3 per cent, and the South Atlantic States where 94.60 per cent reported costs *lower* with the median for all answering being a decline of 8 per cent.

2. If the current trend is downward in your area, how long (in months) do you expect the downward trend to continue?

Analysis: 73 per cent of those returning the questionnaire answered *downward*, the remainder giving no answer. The median expectancy of length of the downward movement was six months. The most extreme regional variation was reported in the South Atlantic States where 87.93 per cent of those returning the questionnaire answered *downward*, with the median duration being six months.

3. If the current trend is downward, how far do you expect it to go (in percentage below present costs)?

Analysis: 69 per cent of those returning the questionnaire answered *downward*, 9.27 per cent answered *stable* and 21.94 per cent did not answer the question. Of those answering, 88.11 replied *downward* and 11.88 per cent replied *stable*. The median downward cost trend was estimated at 8 per cent, including the figures from the *downward* and *stable* answers. Several areas reported a downward cost drop expectancy of 10 per cent, namely, New England, East North Central, West North Central, South Atlantic, West South Central, and Pacific Coast States. The Middle Atlantic, East South Central and Mountain States estimated the decline expectancy at 5 to 6 per cent.

4. Do either of the following factors affect costs in any significant way at the present time?

(a) Excessive time required in shopping for and obtaining materials

Analysis: 82.86 per cent reported *no* and 17.13 per cent reported *yes*. In no region was the percentage of *yes* answers more than 27.50.

(b) Irregular deliveries of materials

Analysis: 68 per cent reported *no* and 32 per cent reported *yes*. However, more than 55 per cent reported *yes* to the question in the West North Central States. In the Pacific Coast States 77 per cent considered irregular deliveries of materials a factor affecting costs.

5. What materials, if any, are still tight in your markets?

Analysis: 28.18 per cent answering the question reported *none*. However, one or more metals and metal products were indicated in short supply by 61.51 per cent of those answering, 20.09 per cent mentioned one or more masonry materials, and 13.72 per cent listed lumber and millwork. Many reported shortages in the three generic classifications. Metals and metal products were reported in especially tight supply in the Mountain States.

6. What materials continue at peak price levels or continue to rise?

Analysis: 24.75 per cent of those answering the question reported *none*. However, 66.17 per cent mentioned one or more masonry materials, 60.78 mentioned one or more metals or metal products, and 14.21 listed lumber and millwork. The materials price picture was somewhat uniform in all regions except in the Mountain States where it appeared more intense.

7. Has the productivity per man hour of on-site workers improved this year as compared with 1948? (Answer in percentage of improvement, if the answer is *yes*.)

Analysis: 84.18 of those answering the question answered *yes*, and 15.81 per cent answered *no*. Only 2.7 per cent of the respondents failed to answer the question. The median percentage of improvement in the year was 10. Those regions reporting less than 10 per cent improvement were New England, 5; Middle Atlantic States, 5; East South Central, 7.5; Mountain States, 5. No regions reported more than 10 per cent improvement.

8. With regard to the remainder of 1949, do you expect increased output per man hour?

(a) Skilled building craftsmen

Analysis: 67.05 per cent of those answering said *yes* and 32.95 per cent said *no*. There were no exceptional regional differences of opinion. In each area more than half of the respondents expected the improvement to continue.

(b) Unskilled labor

Analysis: 67.28 per cent of the respondents said *yes* and 32.71 per cent said *no*. In all areas excepting the Mountain States a majority answered *yes*. In this region 55.5 per cent said *no*.

9. Is overtime pay a significant cost item in your current operations?

Analysis: 89 per cent of the respondents said *no*, and 11 per cent answered *yes*. Only in the West North Central region did overtime pay figure rather prominently. Here 35 per cent listed it as a significant item in costs.

10. What percentage of your current dollar volume of work is being done on a lump-sum contract basis?

Analysis: 24.01 per cent reported that all of their work was being done on a lump-sum contract basis; 26.55 per cent reported 90 to 99 per cent on a firm bid basis; 21.01 per cent reported 75 to 89 per cent on lump-sum basis; and 28.40 per cent reported less than three quarters of their current work on lump-sum contracts. There did not appear to be inordinate regional differences in contract letting practices.

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* MECHANICS OF THE SURVEY

The builders' opinion survey was directed by mailed questionnaire to 2500 builders of whom about 30 per cent answered. Every effort was made to obtain a true reflection of opinion within a given region.

The returns were separated by regions, and a check made through F. W. Dodge Corporation facilities on the dollar volume of work done last year by the respondents.

In order that the returns from no region outweigh another quantitatively, a quota of responses for each region was set up on the basis of percentage of the national volume of construction work undertaken in the area last year. This procedure also eliminated a possible distortion of the national picture brought about by unusual regional differences.

The replies in the tabulations were selected on the basis of individual company volume performed in 1948. Where a selection had to be made within a region, the larger-volume builders only were included in the group from which responses were tabulated.

The regions, and the percentage of national construction volume performed in 1948, are as follows:

New England — Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut — 4.95 per cent.

Middle Atlantic — New York, New Jersey, Pennsylvania — 15.97 per cent.

East North Central — Ohio, Indiana, Illinois, Michigan, Wisconsin — 19.12 per cent.

West North Central — Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas — 8.95 per cent.

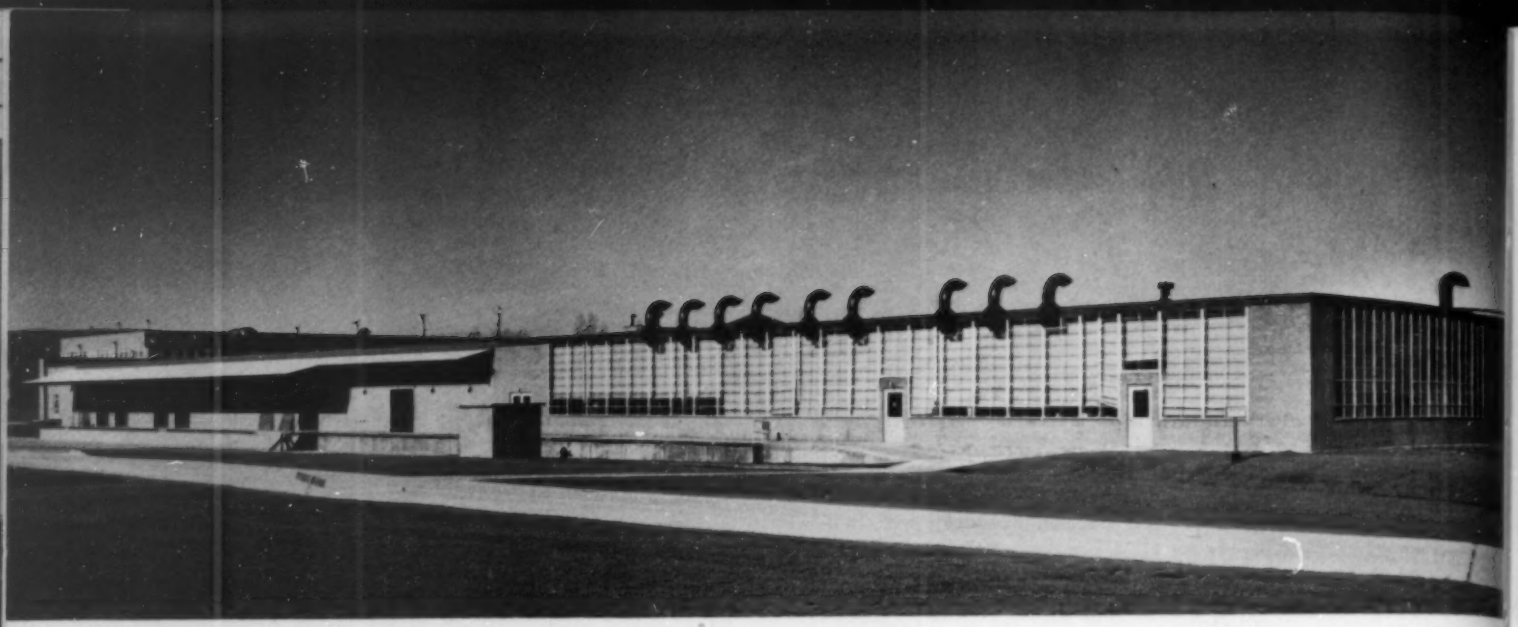
South Atlantic — Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Georgia, Florida — 13.16 per cent.

East South Central — Kentucky, Tennessee, Alabama, Mississippi — 4.71 per cent.

West South Central — Arkansas, Louisiana, Oklahoma, Texas — 11.25 per cent.

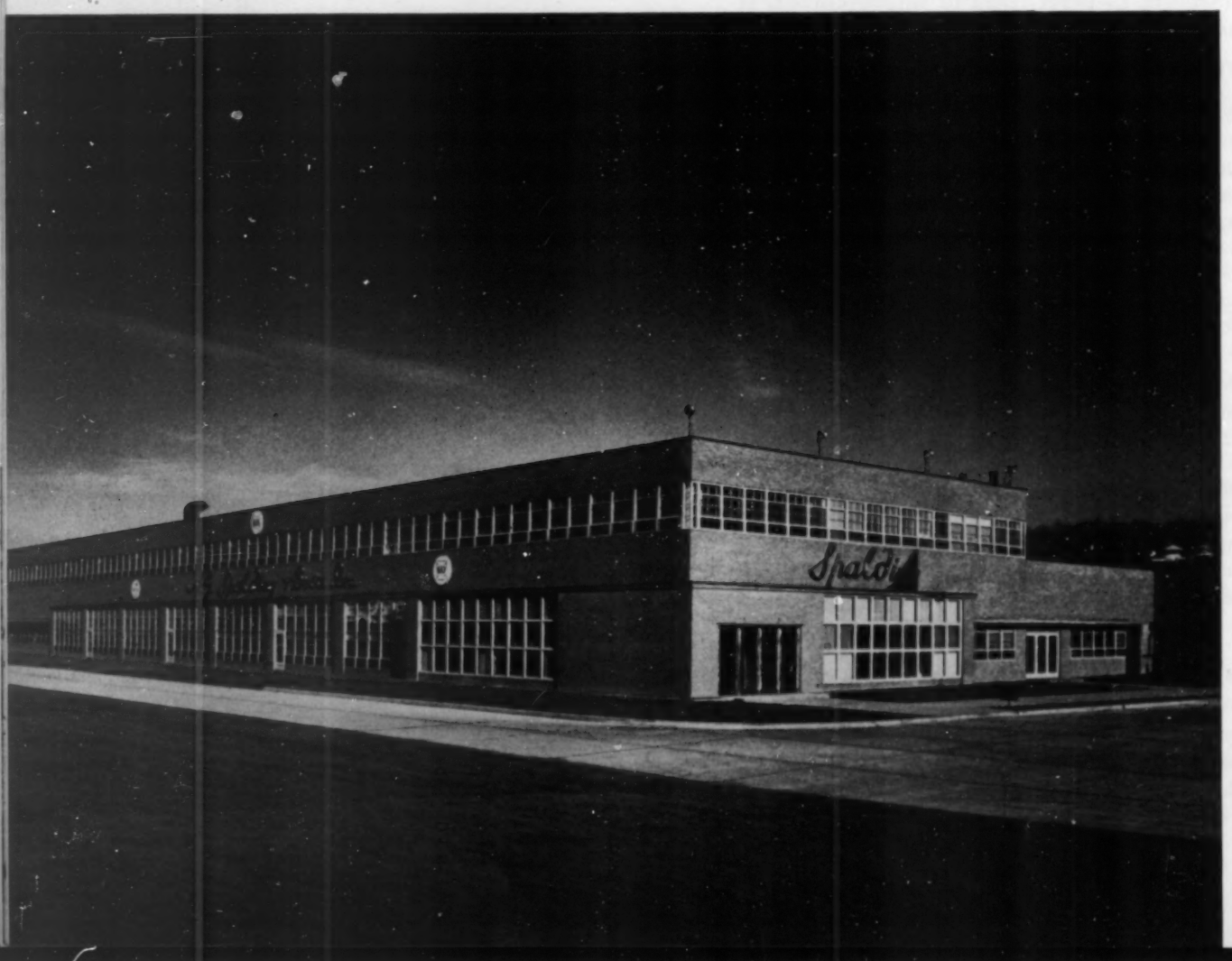
Mountain — Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada — 4.20 per cent.

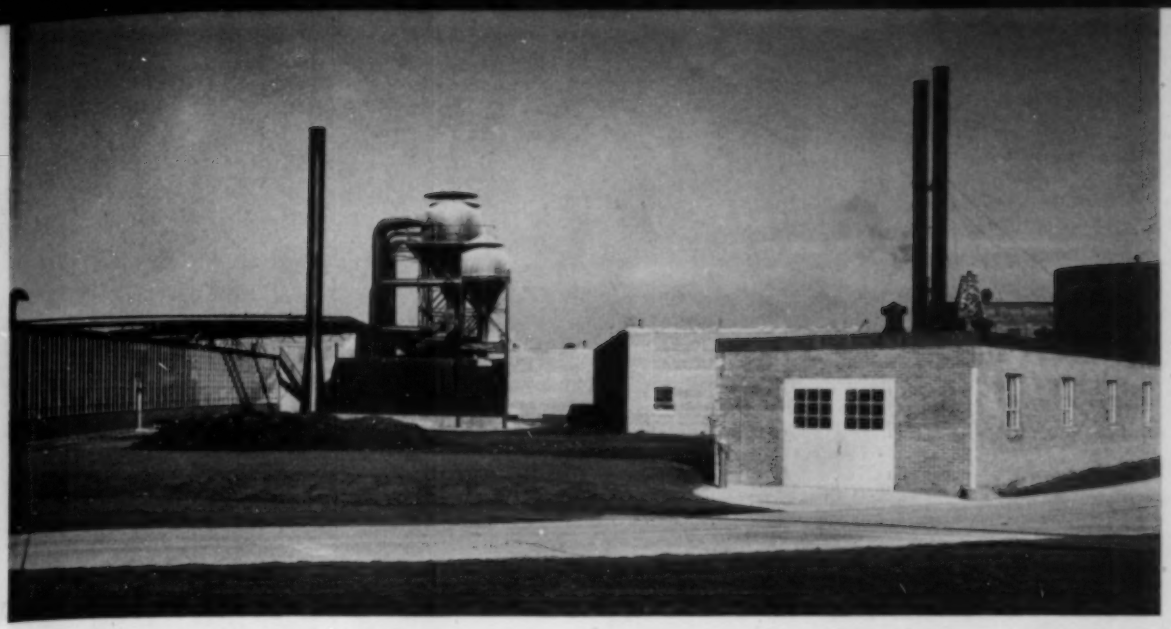
Pacific — Washington, Oregon, California — 17.69 per cent.



Gottscho-Schleisner Photos

ECONOMY AND EFFICIENCY IN SPALDING'S





CONSOLIDATED PLANT AT WILLIMANSETT, MASS.

Lathrop Douglas, Architect

Guy B. Panero, Engineer

John B. Harris Associates, Builders

THE purpose of the new plant for A. G. Spalding & Bros., Inc., was two-fold: to consolidate Spalding's improved manufacturing operations at one plant site instead of the present four; and to provide additional warehousing space to accommodate seasonal inventories. The program took full cognizance of economy in design, operation and maintenance consistent with maximum functional efficiency and an enlightened employee and public relations policy.

The new manufacturing section, which contains 250,000 sq. ft. of floor space, is devoted to warehousing and to lumber processing for wood golf club heads and for tennis, squash and badminton rackets. The rackets are manufactured in their entirety in this new plant, which is the largest in the world devoted to this purpose. Lumber is loaded directly from box cars into steam-operated kilns, and it eventually leaves the building as completed tennis rackets.

The intervening process involves literally scores of separate operations. From the standpoint of building design, two of the most interesting involve the woodworking and lacquering phases. In the woodworking department where sawing, sanding and drilling operations are conducted, a large sawdust collecting system has been installed. Dust is taken out of the air, removed to large hoppers in the rear of the plant and burned. In the lacquering section where the racket frames are sprayed, a special ventilating system has been designed to remove obnoxious fumes from the air.

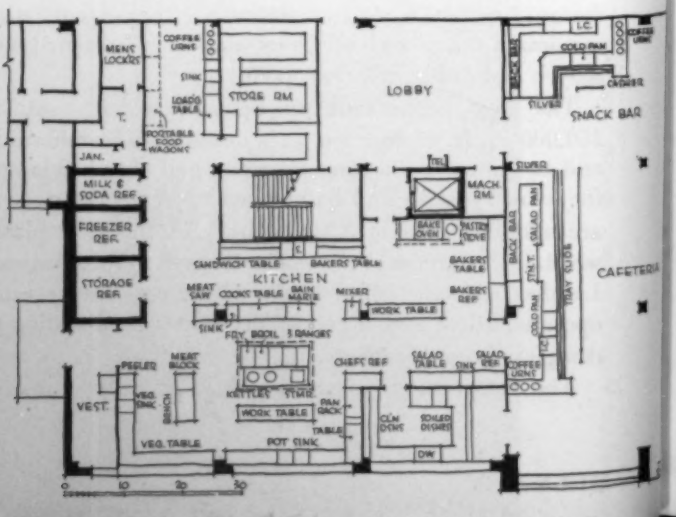
For economy a standard bay — 25 by 25 ft. — was determined for the entire structure. A dead level roof was chosen also to reduce cost. The continuation of steel sash from the brick spandrel wall to the roof line not only reduced the presently high cost of the brickwork, but it also eliminated the necessity of erecting scaffolding, had brick been continued above the sash to the roof.

Wall and roof construction were completed in November 1948 just before winter set in. While masons were

erecting walls, unit heaters, supplied by steam from the owner's existing plant, were placed in their permanent positions. Consequently, interior craftsmen were able to work without auxiliary heaters or loss of time.

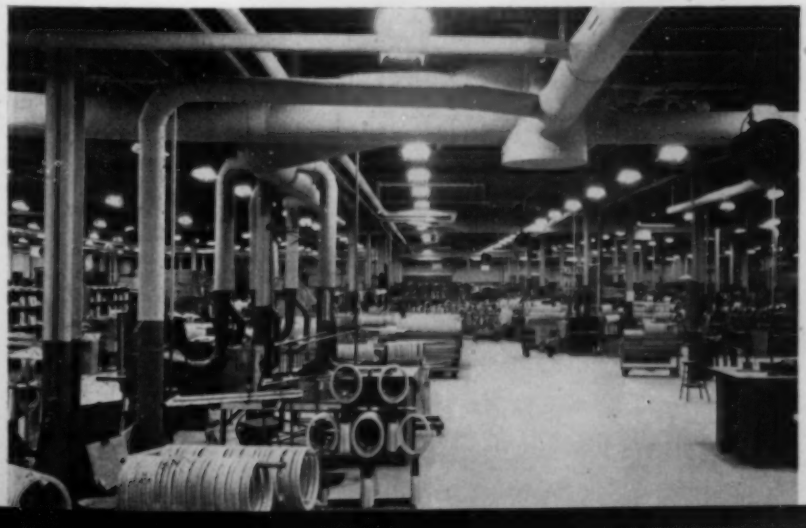
Just off the two-story lobby is a model sporting goods store. Also in this section are the cafeteria, kitchen, the employees' recreation room, the health center, as well as the executive offices and conference rooms.

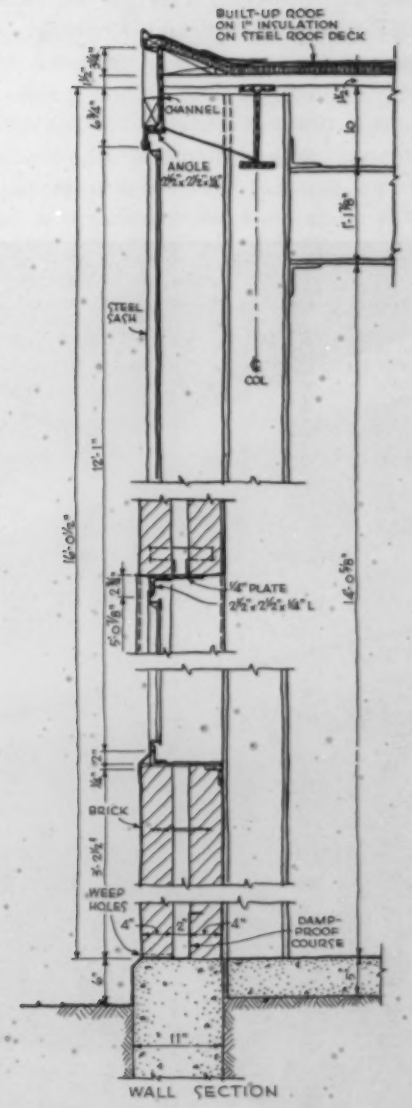
A complete research laboratory is included for the chemical and physical testing of all products produced, as well as for the development of new products, new rubber compounds, plastics, new lacquers, new finishes.



Gottscho-Schleisner Photos

Opposite page, top: the spacious lobby with its information desk and stairs to the offices and conference rooms above. Bottom, the cafeteria serves both office and manufacturing employees. Above, the battery of lacquer cabinets with their exhausts. Below, the racket manufacturing area. Right, the interesting, economical wall, window and roof section





WALL SECTION

Zamora

WELL DESIGNED COMMERCIAL BUILDING

West façade, left, shows glass wall of bank at far left, gas station in center, auto salesroom, and in rear wing, car washing and lubrication space. Upstairs are the restaurant and dance floor, kitchen, facilities for band and entertainers and, in the rear wing, rentable space. Photo at bottom of page shows interior court which separates the two wings

Vladimir Kaspé, Architect

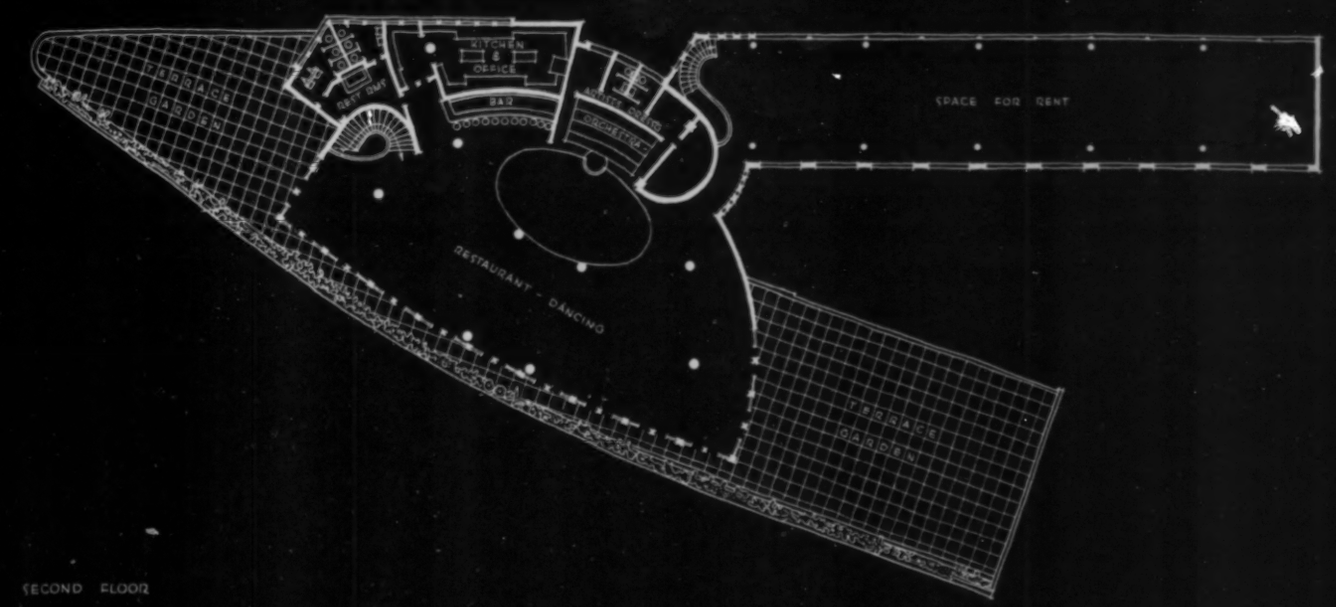
Mexico City, D. F.

IN MEXICO

As an example of what can be done practically as well as esthetically, this multipurpose commercial building, situated at the entrance to Lomas de Chapultepec, a luxurious residential section of Mexico City, should cause serious thought. Its parts are not uncommon in the American scene: a gasoline station, auto salesroom, branch bank, stores and offices, and a small night club. The felicity with which they have been united into a structure which not only is good looking, but also functions well and returns a profit on the investment, puts its American counterpart, the ubiquitous taxpayer, to shame. For example, an almost fiendish ingenuity has been exercised in organizing the building so that banking service, auto sales space, washing, lubrication, etc., are visible from the gasoline station. At the same time, access from the street to each function of the building is direct.

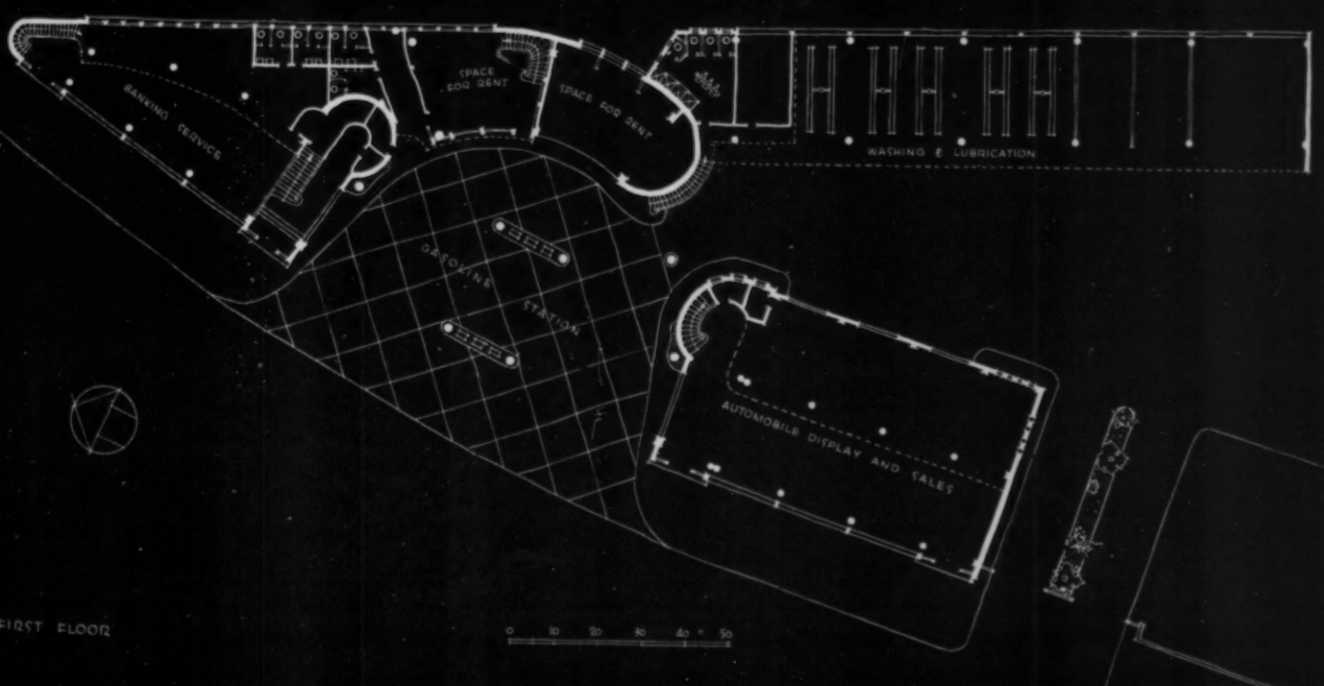
Zamora

Two streets intersect directly opposite the gasoline station which forms the center of the building, and north, an undesirable orientation in Mexico, corresponds to the closed-in point of the banking room; to the south, which is too warm for the comfort of the employees, the building presents solid walls. Manager's office is reached by a curving stair to the mezzanine (photo at left); through the office's continuous window, ground-floor activities can be supervised. From the second-floor restaurant-night club and its terraces there is an excellent view of park and mountains

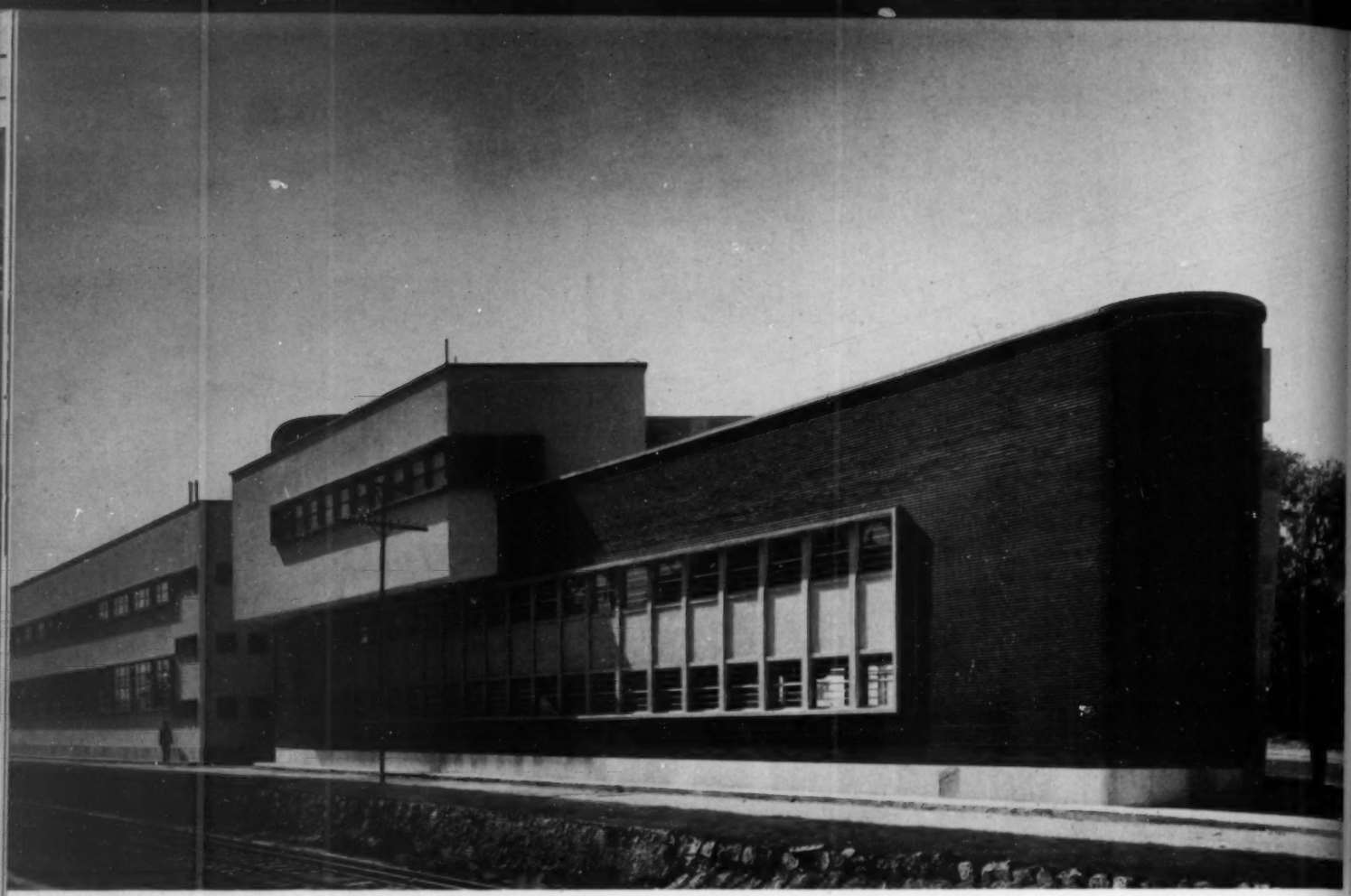


SECOND FLOOR

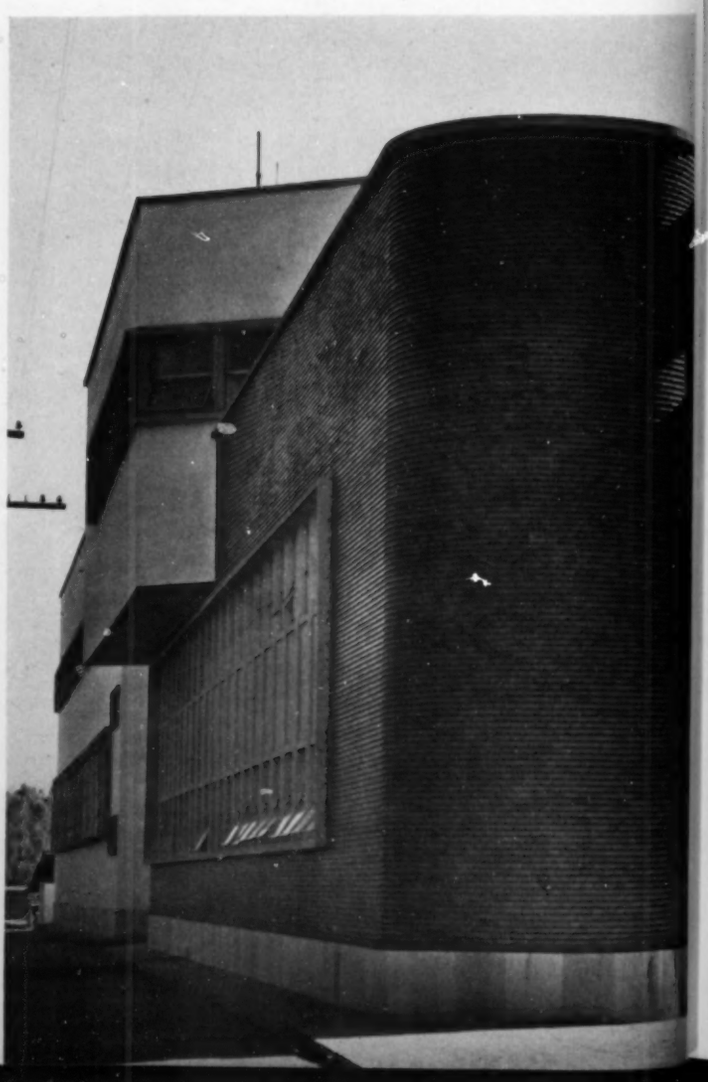
MEZZANINE



FIRST FLOOR

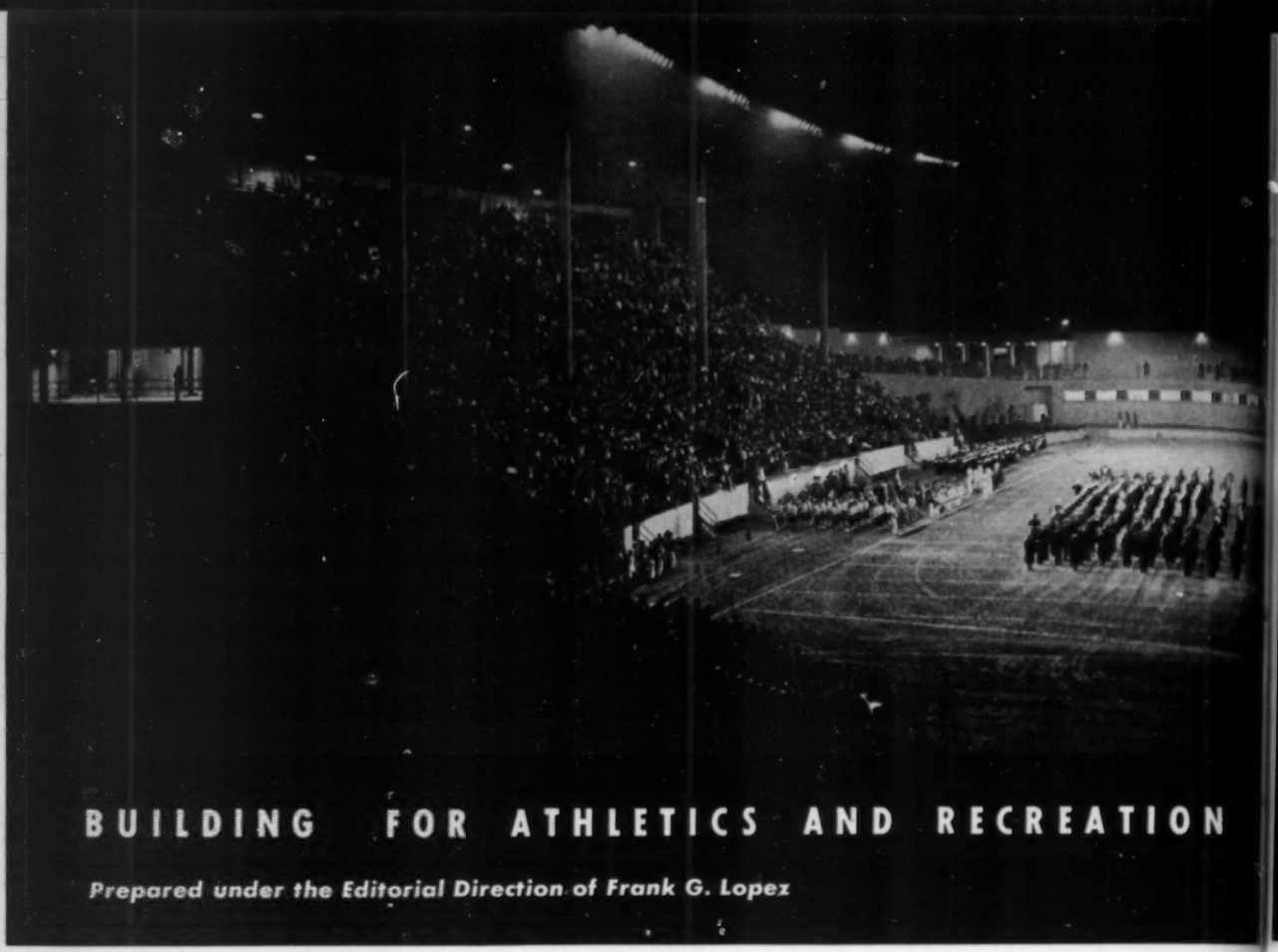


Zamora



Framing is concrete and steel. Columns, as few as possible in number, are independent of walls and windows. Almost all walls are faced with special brick of great durability, and exposed concrete is covered with a natural green stone quarried in Guanajuato. In the gasoline station the lower third of the columns is covered with artificial granite of the same color as the Guanajuato stone, and the joint between the artificial stone and the upper portion of the column finish is covered with a ring of bronze. A red surface finish on the flooring of the central portion provides color accent. Columns and walls in lubrication space are covered with white tile.

All portions of the building are lighted by recessed ceiling spotlights. At night, the exterior is flood-lighted, making it visible from the adjacent park. Photos on these two pages show, above, east and west façades; at left, north end of banking space



BUILDING FOR ATHLETICS AND RECREATION

Prepared under the Editorial Direction of Frank G. Lopez

Out of the formerly accepted idea of athletics as an extra-curricular scholastic or collegiate activity, or as a big-time professional spectacle, there is emerging a concept of athletics, recreation, physical and health education all closely inter-related, closely tied into all phases of community life and planning. In such a concept the provisions of an industrial concern for its workers, of a community group for its members, of a city park department, a school district, a college, all have importance. There is ample evidence, of course, that the concept is not universal; the spectator sport, emphasis and de-emphasis of football and basketball in our educational institutions tell us as much.

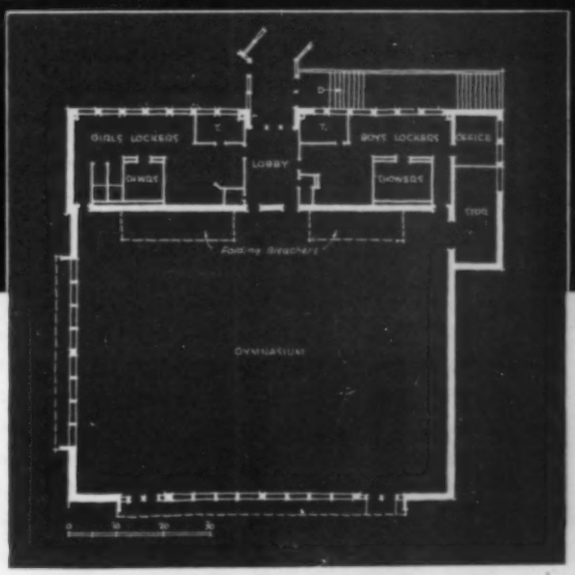
At the same time, the city of Seattle is building a series of fieldhouses of several types, as part of a city-wide program based upon a sound community master plan in which park department and school district facilities supplement one another. Arenas and stadiums are being erected, some municipal, some privately operated. Industrial plants are acquiring recreation buildings. Public schools are finding that the expense of building a gymnasium can be justified if the structure is usable by the entire community. A small college in Goshen, Indiana, is completing a gymnasium building which is to be not only a focal point of college life, but also a center for the religious body which established the college.

Many such developments have been independent; though aims have been parallel if not identical, sources of information have been scattered and often contradictory. In April, 1945, there started a movement to coordinate the aims and findings of educators, planners, recreation, and health organizations, which culminated in December 1946 in the National Facilities Conference at Weston, West Virginia; out of this came the "Guide" noted in the bibliography, which is a comprehensive and valuable compilation of planning information, and building and equipment data.

The space limitations of a Building Types Study preclude thorough treatment of all the structures involved. Therefore attention is here centered upon two kinds of buildings which dominate such a program: gymnasiums and stadiums.

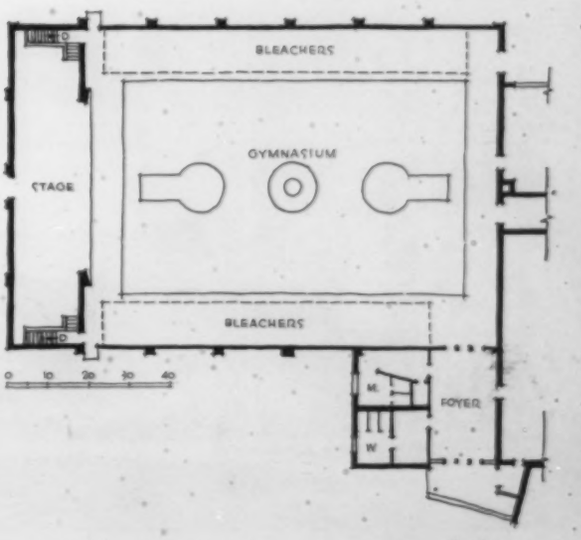
Gymnasiums planned to house basketball courts are adequate to provide for all activities in the normal school or recreation program. There are several interesting developments: in elementary schools, cost and unsuitability are, in some sections, causing authorities to discard the complete gymnasium in favor of smaller *playrooms*, which are approximately 40 by 60 ft., have lower ceilings than true gymnasiums, and are in general more fitted to the smaller size and more limited activities of elementary school students. If *gymnasiums* are used, they are usually divisible with

ARCHITECTURAL RECORD'S
BUILDING TYPES STUDY NUMBER 151

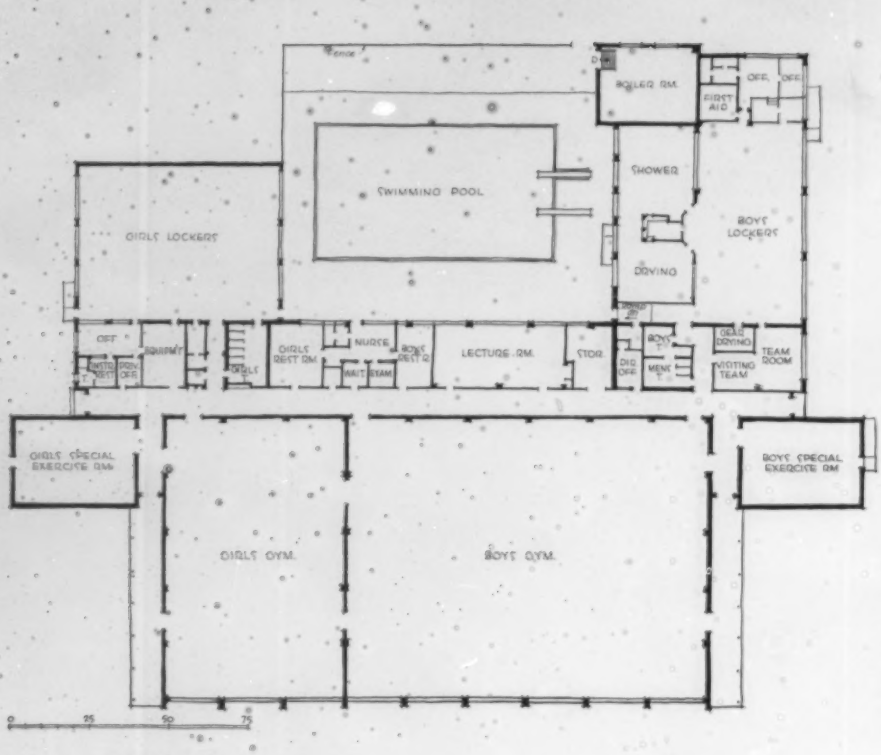


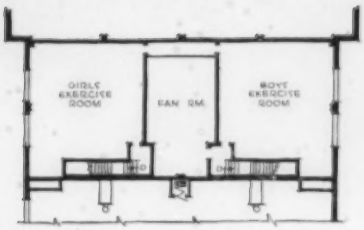
folding partitions; a gym 50 by 80 ft. provides two teaching areas each 40 by 50 ft. For high schools, the American Association of School Administrators suggests a gym 50 by 84 ft.; the "Guide" previously referred to suggests 65 by 90 ft. for junior high schools, 65 by 102 ft. for senior highs, and larger sizes for special conditions. *Locker, dressing, shower, and drying rooms* are considered as integrated suites, not separate units (see Time-Saver Standards). A growing practice is inclusion of *laundry facilities* within the school physical education unit, to reduce laundering cost and wear and tear on uniforms and towels.

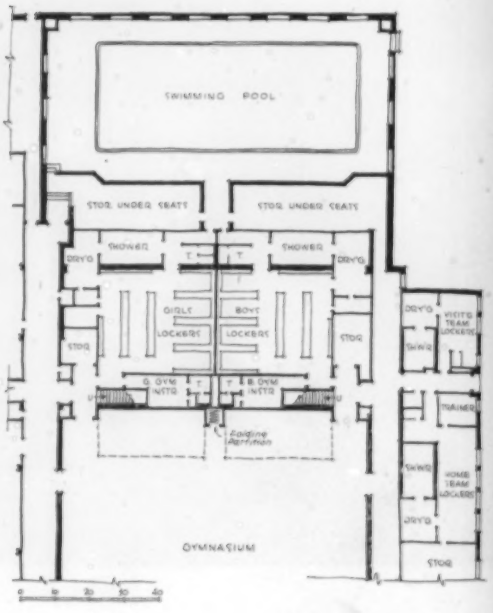
Facing page: Seattle High School Memorial Stadium, Seattle, Wash.; G. W. Stoddard & Associates, Architects and Engineers (described on page 124). Above: Gymnasium building, Wilton, Conn., public schools, takes advantage of a rolling, 65-acre site; O'Connor & Kilham, Architects. Below, Gymnasium, part of a gym-classroom addition to grade school, Lincoln County, Colo., has low-pitched wood plank roof supported by rigid steel frames, with acoustic absorbent applied directly to underside of planks; Henry A. Koch, Architect



The editors acknowledge with thanks the assistance of The American Association of School Administrators, who have generously given permission to quote from their 27th Yearbook, "American School Buildings"; The Athletic Institute, who as publishers for the National Facilities Conference have given equally generous permission to quote from "A Guide for Planning Facilities for Athletic, Recreation, Physical and Health Education"; Dr. Walter Cocking, Editor, "The American School and University"; Dr. Jay B. Nash, Professor of Physical Education, New York University; Dr. Karl W. Brookwalter, Director, Bureau of Service & Research, School of Health, Physical Education and Recreation, Indiana University; Francis J. Moench, Director of Training, State Teacher's College, Cortland, N. Y.; Horn Brothers Co.; Fred W. Medart Co.; American Iron & Steel Inst.; Portland Cement Ass'n.; National Recreation Ass'n.

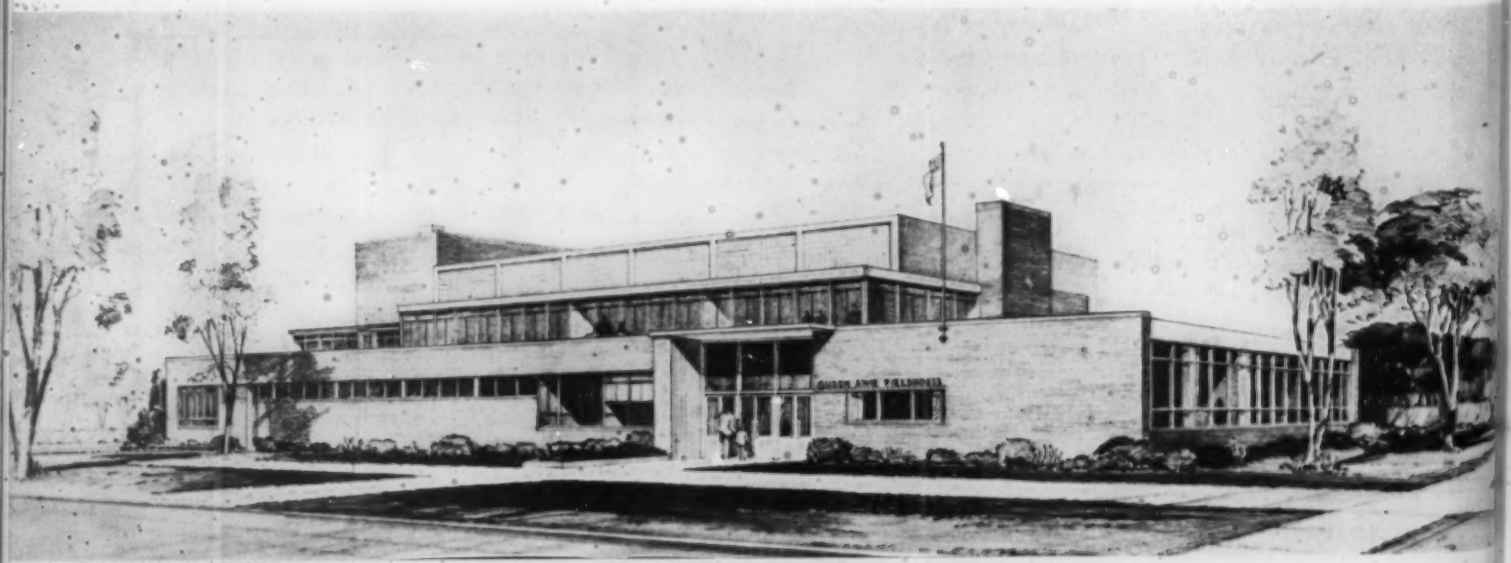


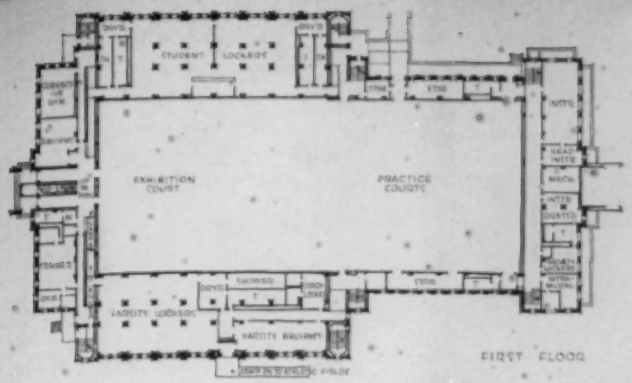


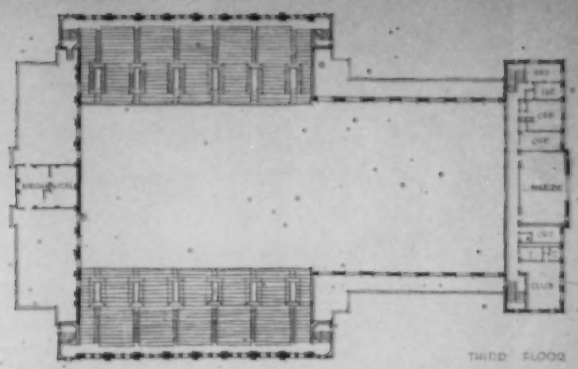


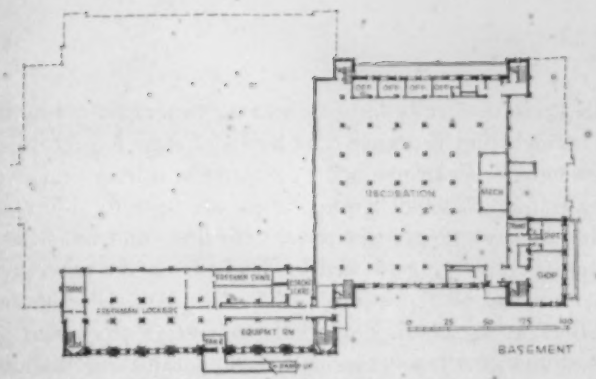
Above, circulation problems, high school locker-room-gym-pool suites. Left, gymnasium and outdoor pool, Mt. Diablo Union High School, Concord, Calif. Extensive outdoor court game space determines locker room location; Reynolds & Chamberlain, Archts., Bamberger & Reid, Associated. Right, junior-senior high school, Cheektowaga, N. Y., has athletic facilities in center of building, classrooms surrounding. Locker rooms serve both pool and gym on ground floor; interior stairs lead to exercise rooms on floor above; Earl Martin, Archt. Below, Department of Parks, Seattle, Wash., has an extensive athletic and recreation building program including two types of fieldhouses: Class A has gym 60 x 90 ft., social and game rooms, serves 20,000 population within 1 to 1½-mile radius, is located on neighborhood playfields preferably adjoining high schools. Seven are in operation, two under construction, among them West Queen Anne Fieldhouse (rendering below, plan across page) by Narramore, Bain, Brady & Johanson. Class B fieldhouses, on elementary school playgrounds, have social, game rooms, preferably small gyms, serve 5000 to 10,000, ½ to 1 mile radius

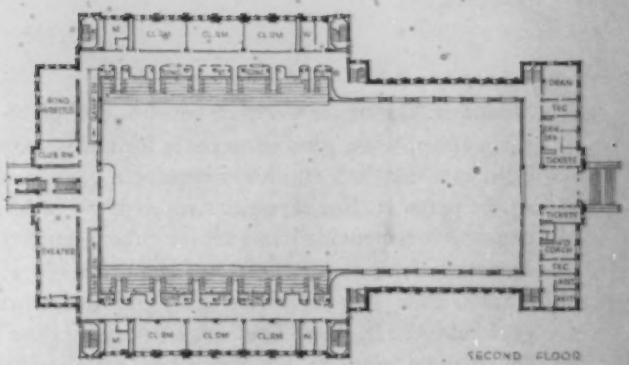
Adjuncts to the gymnasium include corrective exercise rooms, equipment and apparatus storage space, and swimming pools. As the exercise room requires direct access to locker-dressing suites, it may complicate the circulation problem; two approaches are shown above. Another, not illustrated for lack of space, places exercise rooms at ends of locker suite; this uses more ground-floor area than placing them above as in the Cheektowaga scheme. One type of equipment storage often neglected is space for the gym piano; an alcove protected by a wire screen to prevent damage to the piano is sufficient. The





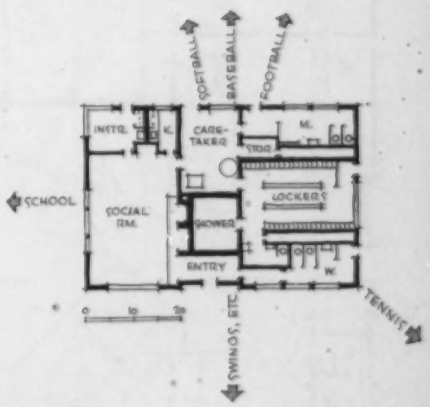


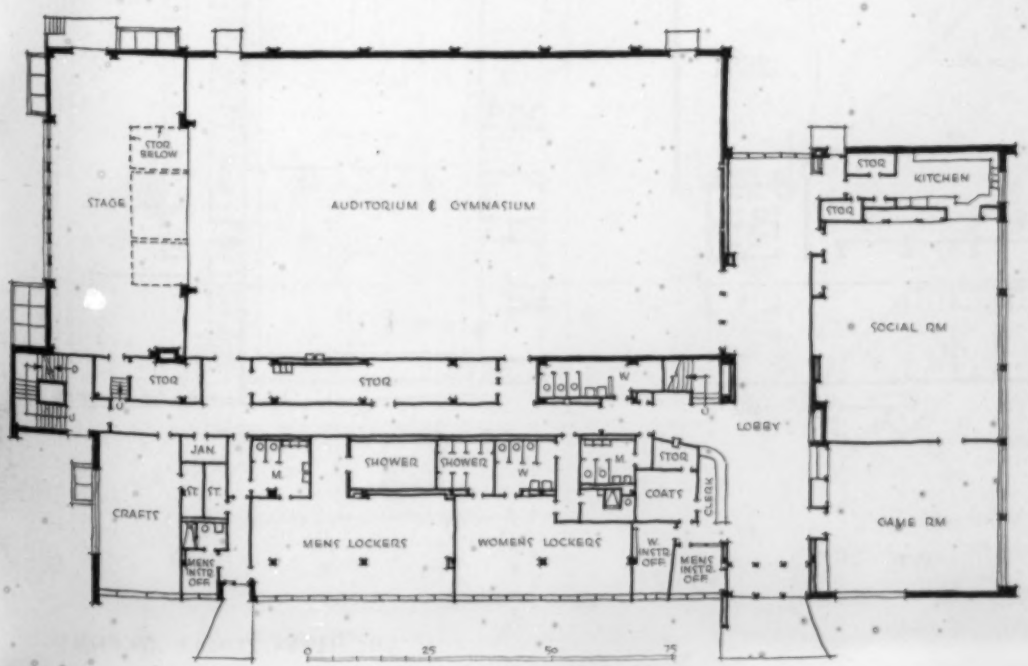




American Association of School Administrators suggests, for swimming pools, use of the non-competitive, constant-depth pool (42 to 46 in. deep throughout) as a means of reducing cost. This should be satisfactory for most swimming-teaching demands. For interscholastic competition a pool should be at least 75 ft.-1 in. long, and in width it should provide from four to six swimming lanes, each 7 ft. wide. Pool details, curbing, drainage, and other details should conform to recognized good practices. Every precaution should be taken to prevent siphoning pool water into the regular water system.

Above, new gymnasium building, University of Florida, has student and faculty facilities, classrooms, club and recreation rooms, theater, speakers' balcony in gymnasium. Athletic equipment is complete in all respects. Cost, exclusive of furnishings, over $1½ millions. W. Kenneth Miller, Archt., associated with Guy C. Fulton



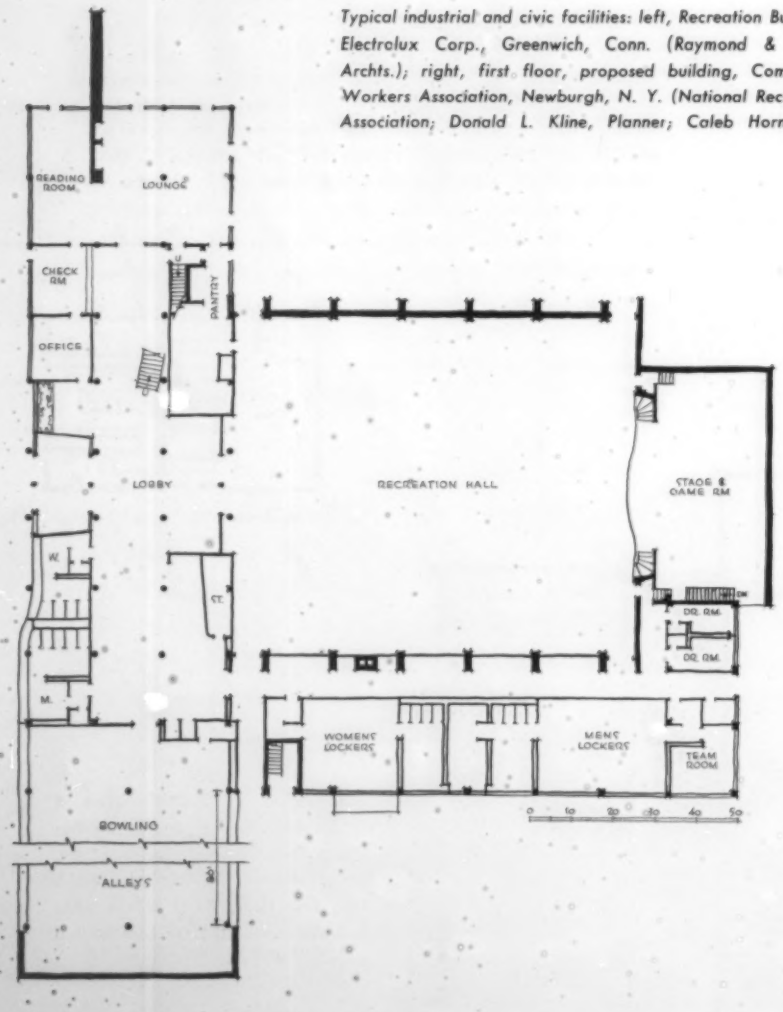


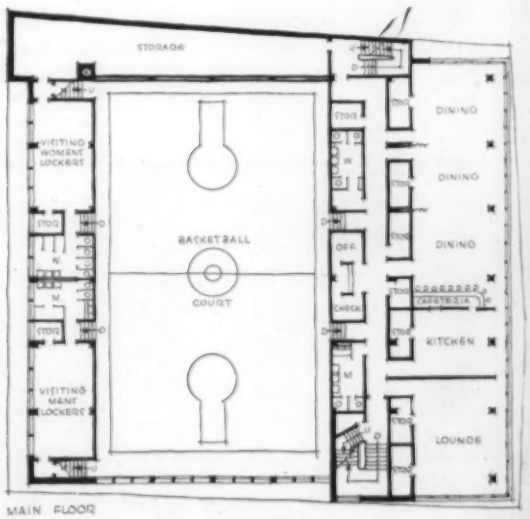
Above, one of Seattle's Class B fieldhouses, Ranier Beach Shelter; Seattle Dept. of Parks, Paul V. Brown, Supt., Alfons V. Peterson, Archt. Left, first floor, West Queen Anne Fieldhouse; second floor contains two more social rooms

Courtesy Horn Bros.

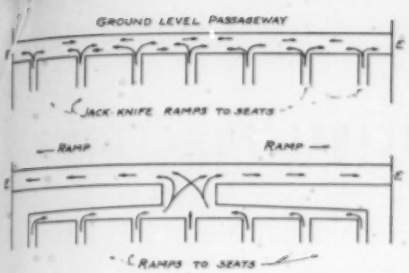
Gymnasium, Glen Burnie Junior High School, Glen Burnie, Md. (Buckler & Fenhagen, Archts.) shows folding partitions, electrically operated in center of gym, manual across balcony; also 5-row folding bleachers, closed against wall

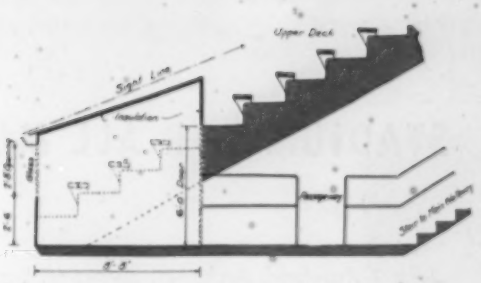
Stadiums. Based on average tread width of 26 in. and seats 18 in. wide, plus allowances for aisles, ramp openings, etc., football stadiums require a gross area of 4.1 sq. ft. per seat. For capacities up to 4000, unless future expansion is provided for, rectangular stands are most economical; above 4000, curved (preferably elliptical) stands. Side stands should be a minimum of 20 ft., preferably 30 ft., from field sidelines; more than 70 ft. or 75 ft. may improve sightlines but penalizes the view (too distant) unduly. In small stands risers are customarily a constant 8 in. to 10 in.; for more than 20 rows deep, risers usually increase in rear to maintain 4 in. to 6 in. sightline clearance over heads of seated spectators, the smaller clearance being customary in large-capacity stadiums. Baseball grandstands are usually built as chords or segments of circles, with first- and third-base stands converging toward foul lines from the minimum distance of 60 ft. required at home plate. Orientation differs for baseball. For a comprehensive treatment of stadiums for all sports consult "Grandstand and Stadium Design," published by The American Institute of Steel Construction.

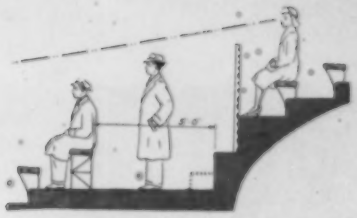




Typical industrial and civic facilities: left, Recreation Building, Electrolux Corp., Greenwich, Conn. (Raymond & Rado, Archts.); right, first floor, proposed building, Community Workers Association, Newburgh, N. Y. (National Recreation Association; Donald L. Kline, Planner; Caleb Hornbostel, Archt.) Both contain gymnasium-auditoriums. Newburgh project has stage over long storage space, stadium seating over locker rooms and toilets; ground floor contains main entrance, bowling alleys, billiard room, arts and crafts room, small children's playroom, locker rooms







Above, stadium circulation and sightlines: left, scheme B, avoiding two-way traffic and long walkways, is 30 per cent more efficient than A. Center, broadcasting booth at bottom of upper deck. Right, longitudinal aisle depressed so pedestrians are below sightlines. Below, left, elliptical football stadium emphasizes best view from all seats; size shown has 32,000 capacity. Right, ground level, Municipal Stadium, Kinston, N. C.; space under seats used for dressing rooms, concessions, etc. (John G. Rowland & Assoc., Architects; see page 122)

CONDENSED BIBLIOGRAPHY

Note: Space does not permit publication of a complete bibliography. For additional titles, the editors suggest that the publication, *American School and University*, be consulted; or that information be obtained from The National Recreation Ass'n., New York.

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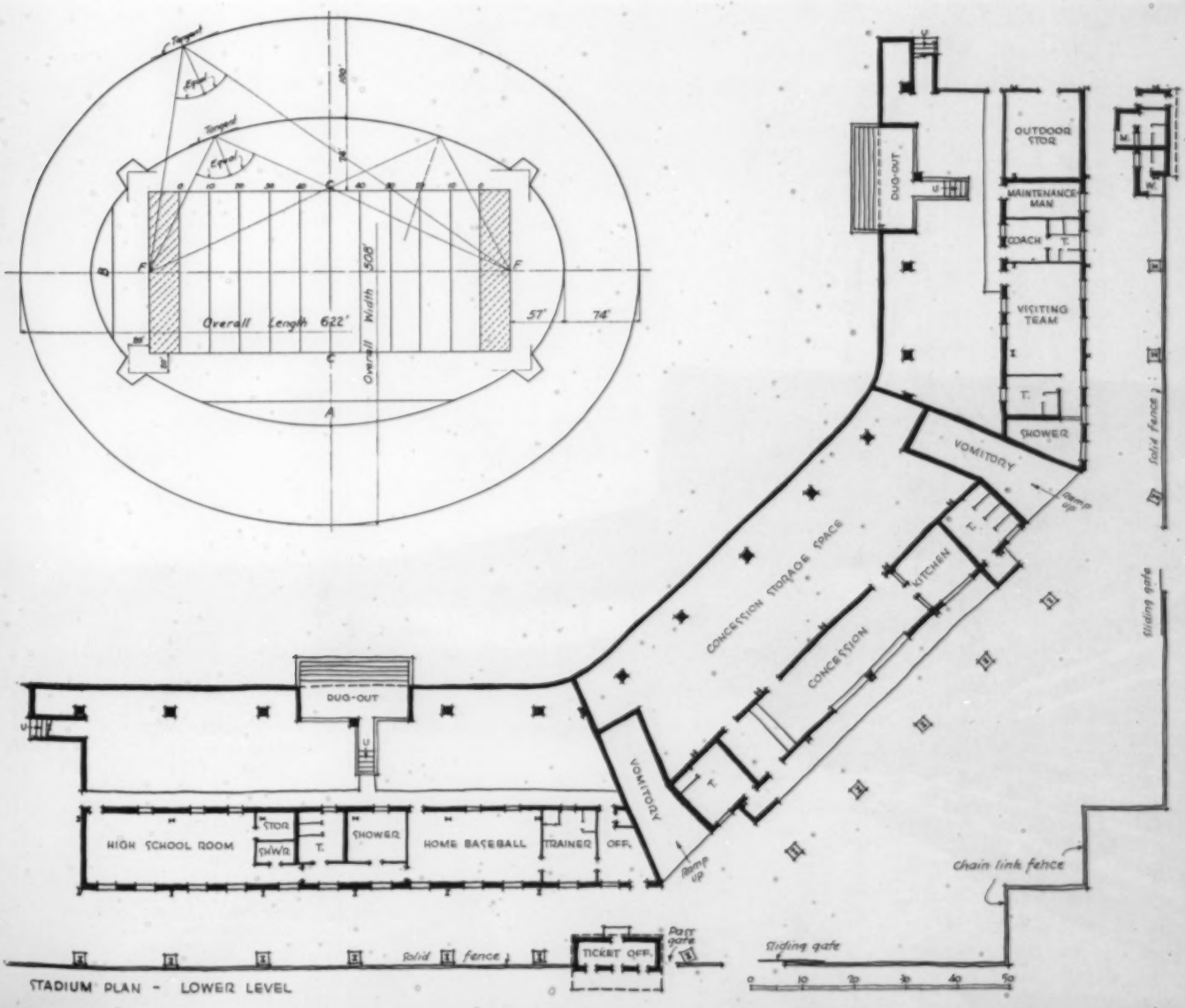
The following and other publications in the educational field contain numerous articles on buildings for athletics, health, and recreation: *American School and University; American School Board Journal; Nation's Schools; Recreation; School Executive*.



STADIUM FOR ALL MUNICIPAL FUNCTIONS,

John J. Rowland, Architect; James M. Simpson, Associate

KINSTON's Municipal Stadium is designed to provide for community gatherings and rallies of various kinds as well as for high school football and baseball, and professional baseball. Such a design is primarily a baseball scheme with the football field running either diagonally, which would in this instance afford better lighting, or parallel with the third base line, which would provide a better view for a larger part of the audience. The third base leg of the stadium is the longer. There are 2235 riser seats and 276 box seats — approximately 20 seats per thousand of white population — plus 500 seats for Negro spectators (about half covered) and 400 bleacher seats. Kinston expects to add at least 900 bleacher seats. The method of construction — steel framing with 3/16 in. steel risers and concrete treads on aluminum forms — was selected for economy in first

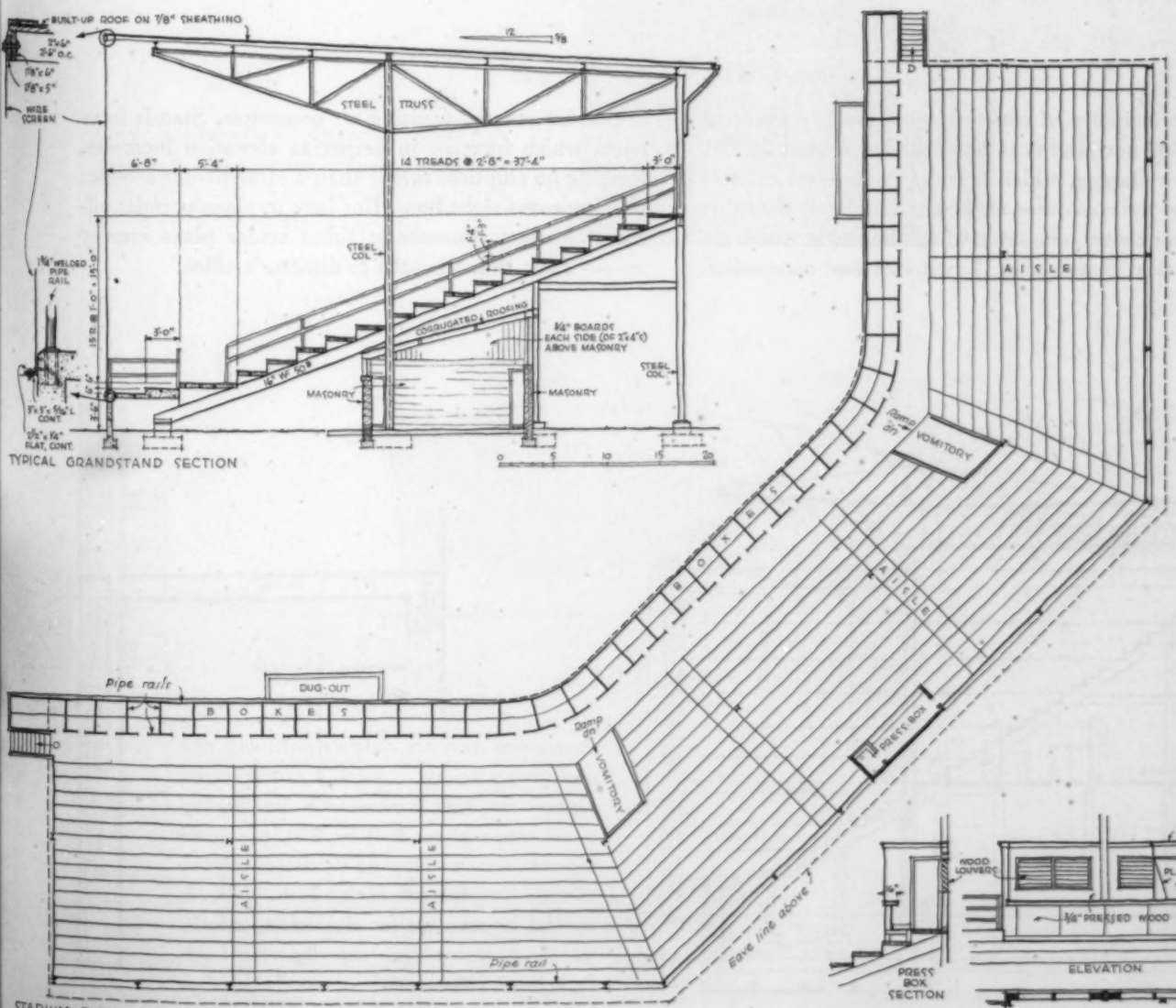
Construction principally of steel, but with concrete treads, proved economical

KINSTON, N. C.

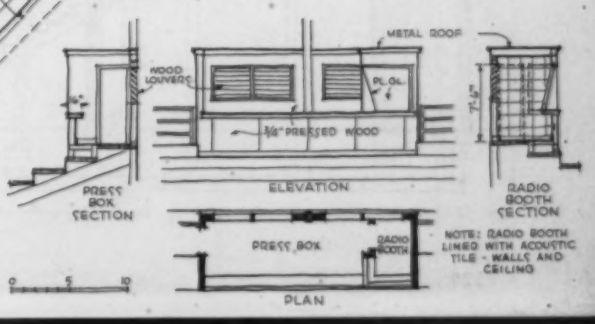
cost. Team accommodations under the stands include separate locker rooms for high school and professional athletes; toilets and showers are jointly used. The field is lighted at night by 120 open aluminum reflectors and 40 lensed reflectors. Of the total cost of approximately $170-000, inclusive of everything except land cost, $150,000 was raised by a bond issue. Just completed, the stadi-um is in use this summer; planting will be added next year.

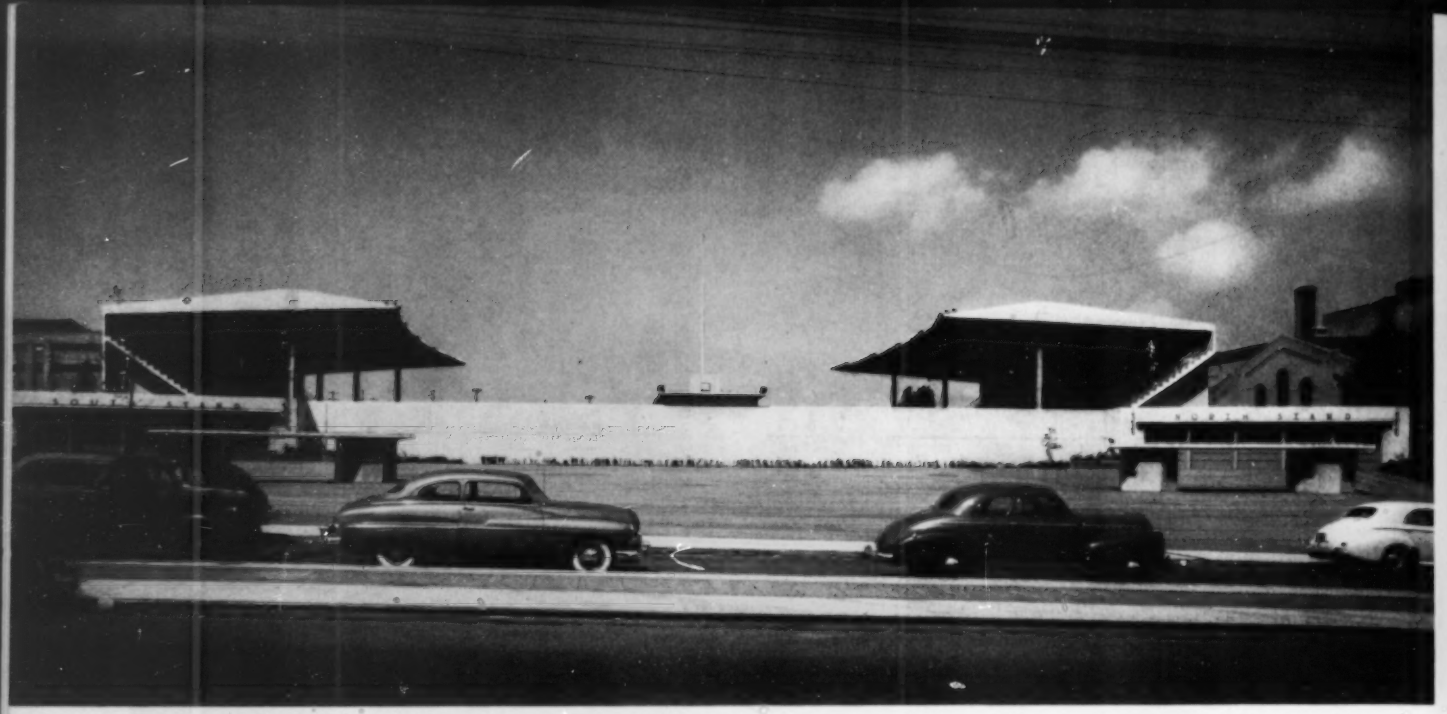
For plan of lower level see page 121. Press box construction shown at lower right

TYPICAL GRANDSTAND SECTION



STADIUM PLAN - SEATING LEVEL

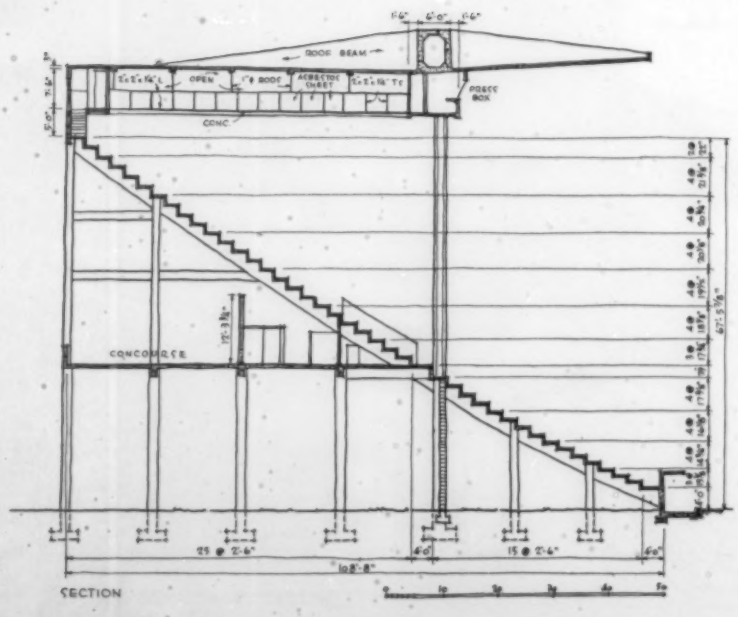


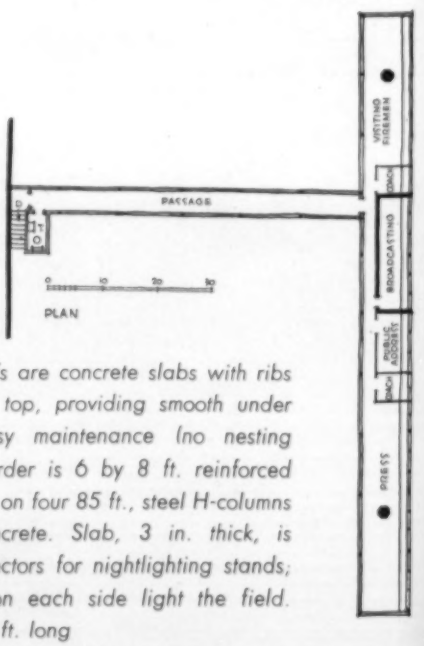


SEATTLE HIGH SCHOOL MEMORIAL FOOTBALL STADIUM

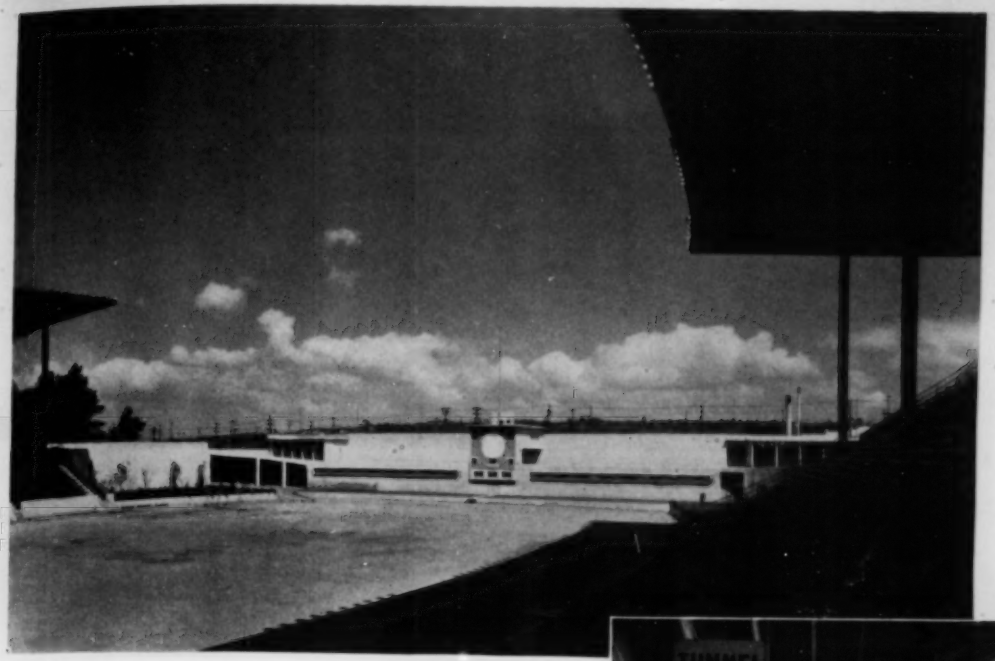
George W. Stoddard & Associates, Architects & Engineers

Built principally of concrete, this football stadium seats 11,500 now and is to be expanded to seat 26,000. The site is sloping, which permits grade-level exits at one end of the concourse under the stands; at the other end, concourse traverses roof of fieldhouse, in which are four identical team suites. Lavatories and concessions are under stands, fronting on concourse. Stands have risers which increase in height as elevation increases, forming an elliptical rather than a straight-line section; this improves sight lines. Bus lane in plaza permits off-street loading. Pneumatic tubes under plaza convey money from ticket booths to director's office.

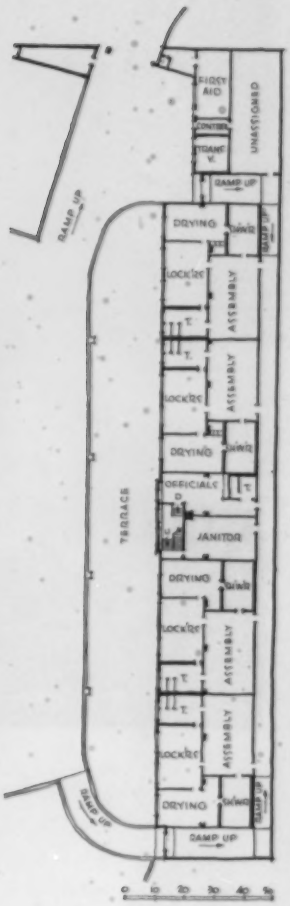




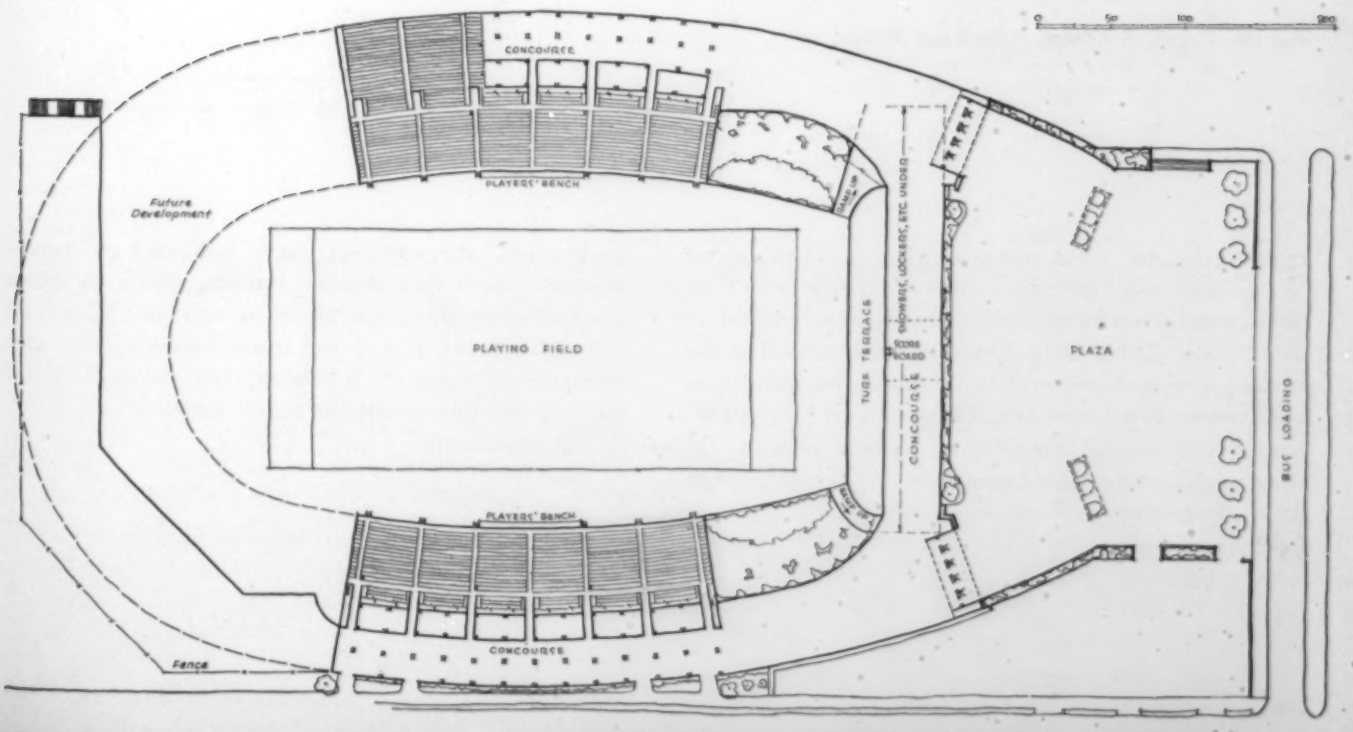
Grandstand roofs are concrete slabs with ribs and girders on top, providing smooth under surface for easy maintenance (no nesting birds!. Main girder is 6 by 8 ft. reinforced concrete, resting on four 85 ft., steel H-columns encased in concrete. Slab, 3 in. thick, is pierced for reflectors for nightlighting stands; 42 floodlights on each side light the field. Press box is 109 ft. long



Dearborn-Massar Photo



Center portions of north and south stands, also fieldhouse which closes east end, are now completed; stadium is eventually to be extended to form horseshoe enclosing west end



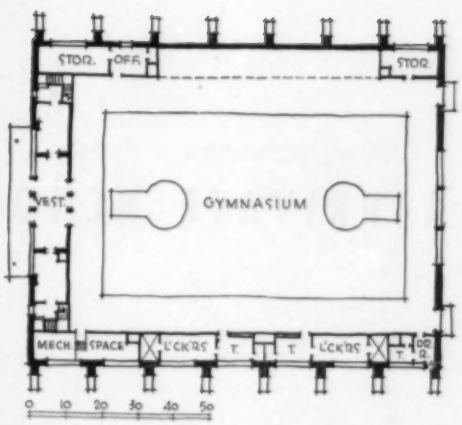
GYMNASIUM, LINCOLN HALL, LINCOLNDALE, N. Y.

Van Der Gracht & Kilham, Associated Architects

THE laminated wood arches which support this gymnasium's roof have a clear span of slightly more than 80 ft., and the under side of the crown is approximately 25 ft. above finish floor. Exterior walls, including the curtain portions between the 2-ft.-thick brick buttresses, are brick-surfaced masonry. The roof is of 2-in. plank, reminiscent of mill construction, which permits the wood arches to be placed nearly 16 ft. on centers. The floor is framed of wood supported on individual posts on footings, a method which provides the resiliency necessary in a gymnasium.

Out of these simple materials, and with a plan equally uncluttered, the architects have fashioned an unpretentious, thoroughly pleasant building which serves its purpose admirably. Spectators are accommodated on the end balcony and in the space between office and storage room along the west wall. Over the balcony is a movie projection room; the movie screen is suspended on the north wall.

Laminated arches were placed on masonry abutments by means of a simple boom; purlins braced them until the 2-in. plank roofing was applied


STOR.
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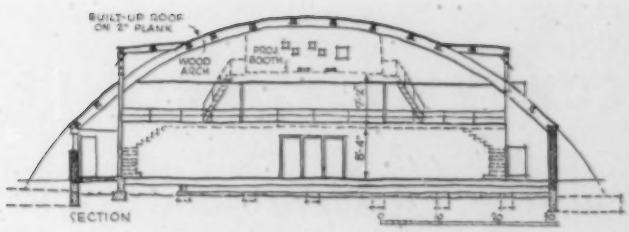
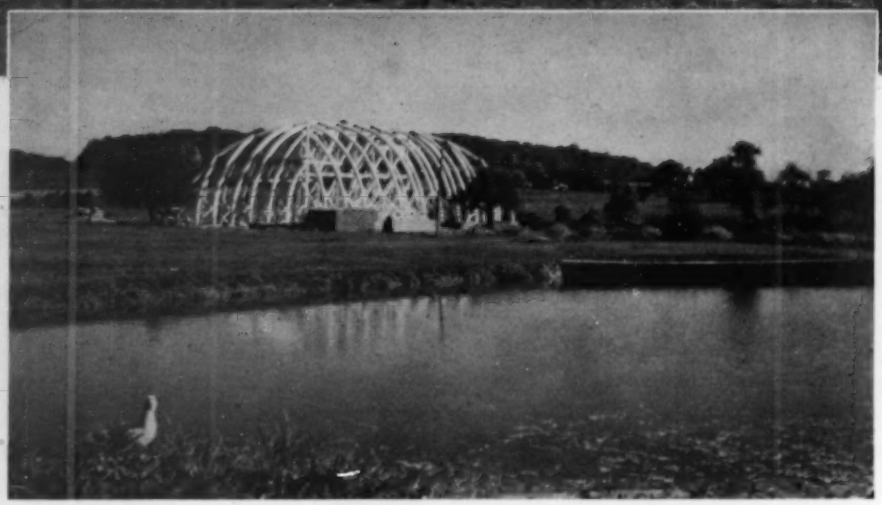

BUILT-UP ROOF ON 2" PLANK
WOOD ARCH
POOL BOOTH
SECTION



Top Photo: J. H. Melford. Lower Photo: William Hunt

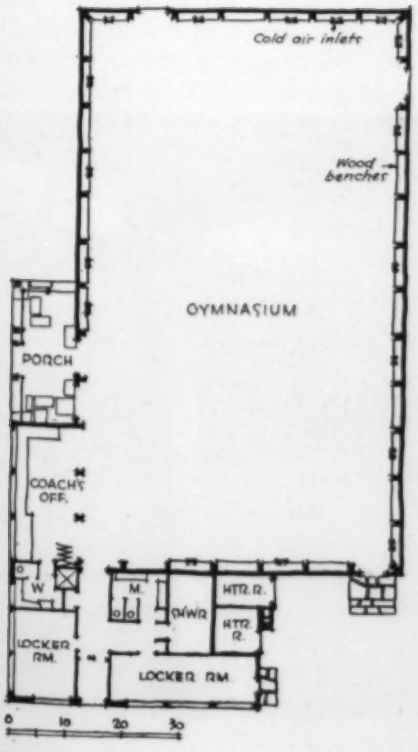
ECONOMICAL STRUCTURE FOR A PRIVATE SCHOOL

GYMNASIUM, SOLEBURY SCHOOL, NEW HOPE, PA.

William Hunt, Designer; Morgan C. Rulon, Engineer

LIKE many other schools, Solebury found that its initial gymnasium scheme was too expensive. William Hunt helped his alma mater find an economical solution to their building problem, which could not have been achieved without the enthusiastic cooperation of the engineer and the builder, Robert Lamb & Son of Philadelphia. There are no non-essentials in this structure; in every respect it is a direct expression of the requirements of function and construction. The laminated wood arches were selected as the most economical means of spanning the required space; they are bolted, like church roof arches of several years ago, rather than pressure-glued, because the builder found he could fabricate them in his own shop more cheaply than he could buy them. Other economies include the heating system (see page 130) and the elimination from the building contract of partitions, heating, etc., shown surrounding the locker and shower rooms in the accompanying plan. These partitions are being built by the school maintenance staff; heating for these rooms will be installed later.

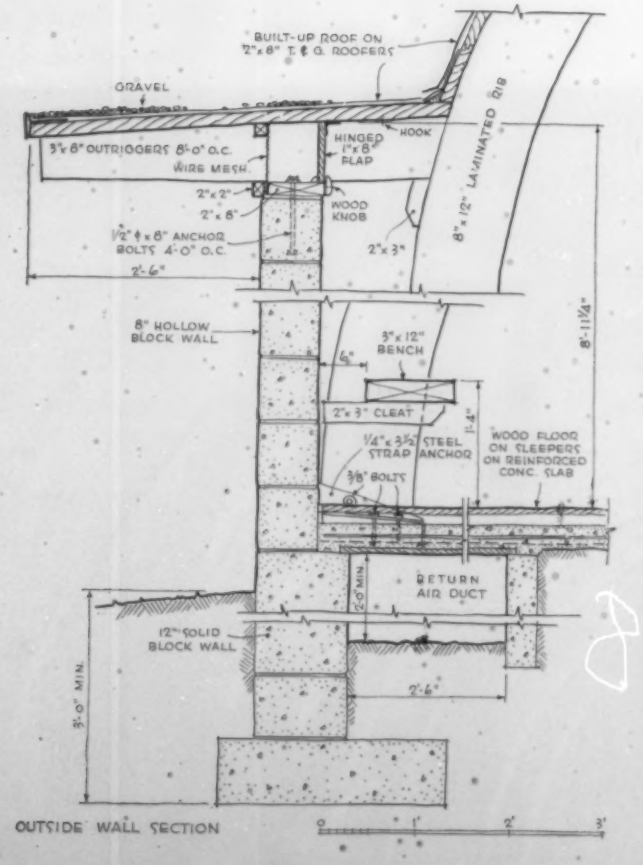
J. H. Melford Photos

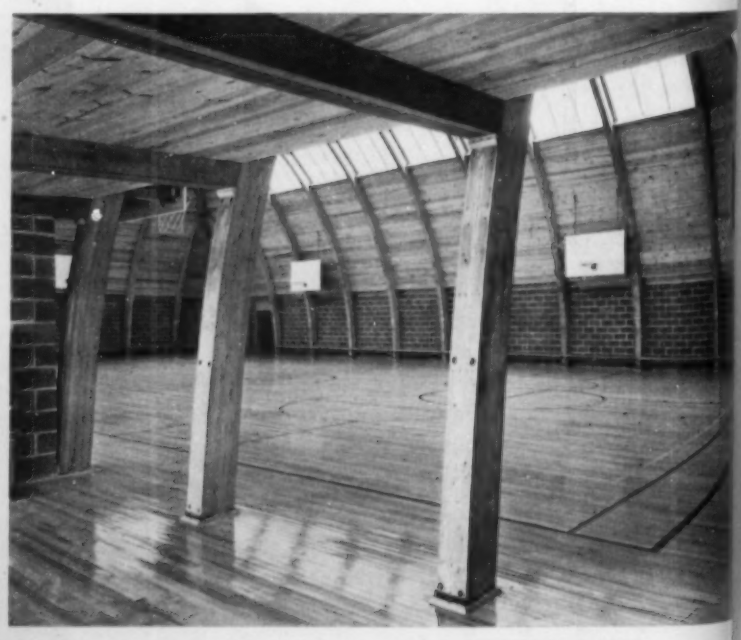


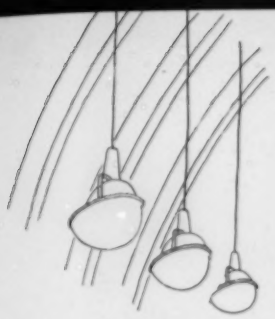
J. H. Melford Photos

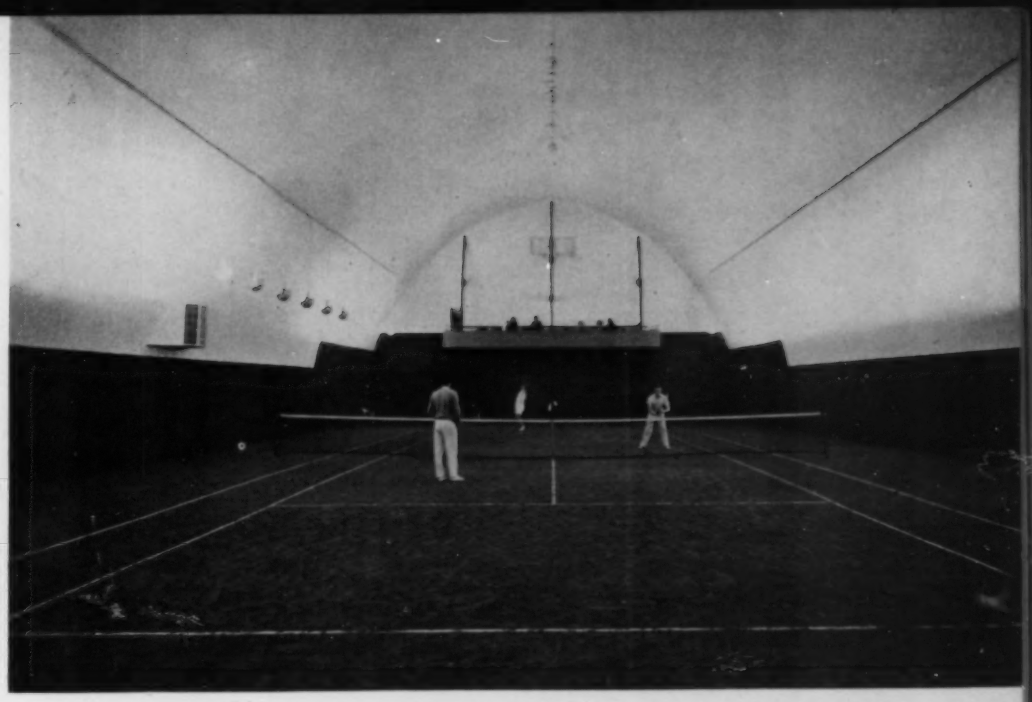
The Solebury Gymnasium is heated by a single industrial unit suspended in the heater room at the end of the gym; heated air is discharged through grilles high in the gym wall. Air is returned to the heater through floor ducts around the gym's periphery, through inlets in alternate bays as shown on plan (see page 129). Originally there was an inlet in each bay, but this number was found to be unnecessary. Tests when the heating system was put into operation showed a maximum air temperature difference of 3° F at opposite ends of the playing floor, taken approximately at head height.

The section below explains the simple structural system, method of tying the laminated arches into the reinforced concrete floor slab, and construction of the concrete-block-walled lean-to which surrounds three sides of the structure, a device which enabled the designer to utilize spaces between the arches for plank seats. This lean-to is extended to cover the entry porch, offices and locker rooms. Total cost, excluding items being installed by the school staff, was approximately $60,000.







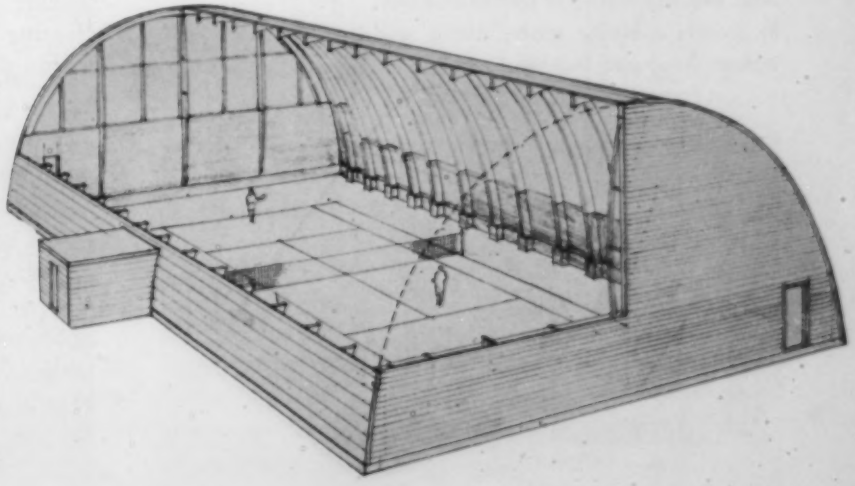


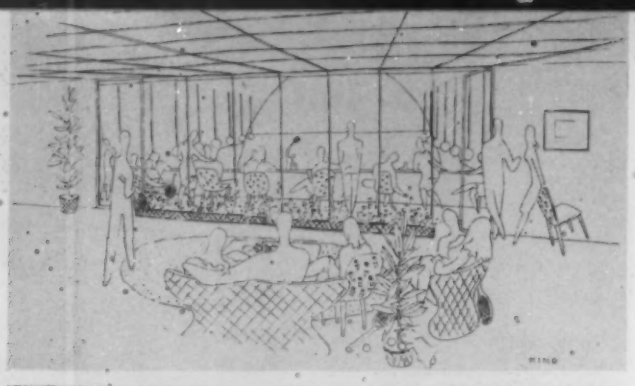
Sold in package form, the 62 by 120 ft. Dynar Recreation Building complete with light and heat generator and insulation, but exclusive of foundations, flooring, and erection costs, carries a price tag of $25,000; erection cost varies from $10,000 to $13,000 at today's prices; operating cost is less than 80¢ an hour.

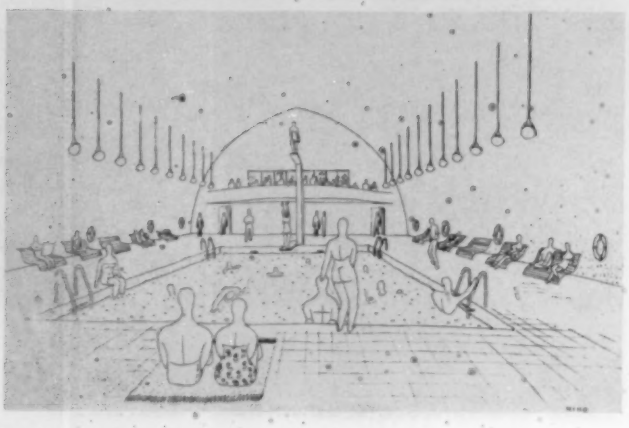
PACKAGED BUILDING FOR GYMNASIUM OR RECREATION CENTER

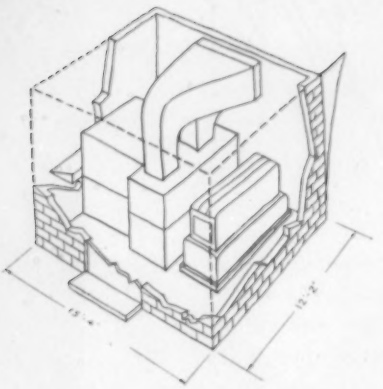
Dynar Buildings, Dynar Corp., New York, N. Y.

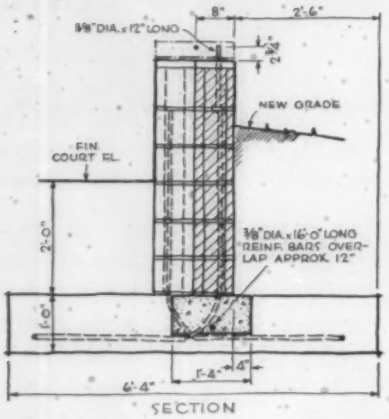
In 1939 Sherman M. Fairchild, tennis amateur and aircraft designer-manufacturer, wanted an indoor tennis court. Finding that most buildings of this type cost $75,000 to $250,000 when built in the 1920's, and $5 to $7.50 an hour to operate, Fairchild and another enthusiastic tennis player, Clifton Jones, began the hunt for a more reasonable structure. Glass was first investigated, but massiveness of construction (which means high cost), condensation problems, operating costs, and inadequacy of natural lighting caused this approach to be discarded. High-level, glareless lighting was found essential, so a windowless, insulated building, lit wholly artificially, was decided upon. An initial tennis building was erected on Fairchild's Long Island estate. During World War II, of course, the idea of a mass-produced building which had emerged from the experiment was shelved. In 1946 the first building was reappraised. In light of war experience, use of aluminum sheets formed in "hat" sections, so that the sheet which excluded weather also became the structural member, was studied. Problems of thermal insulation, acoustical absorption, and condensation arose and were solved;









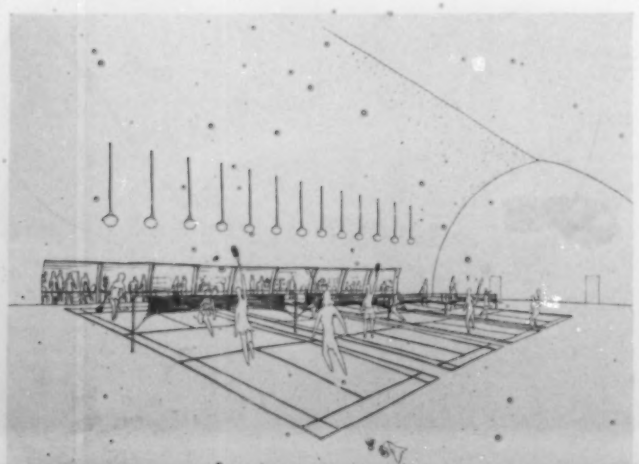


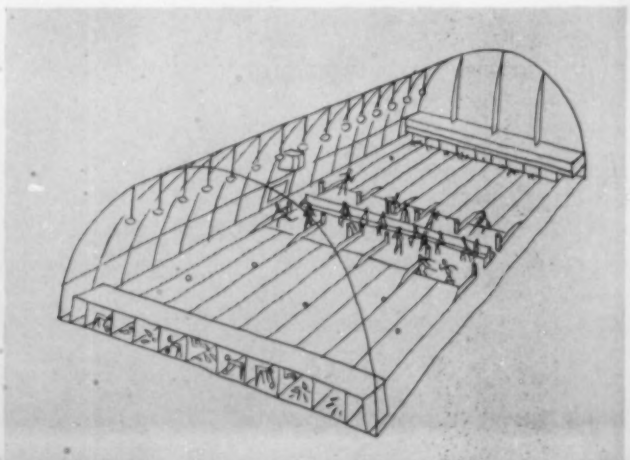
SECTION

Peak wind loads, up to 105-mile gusts, are transmitted partially through end bulkheads, partially through ribs to foundations shown above. Overturning moment is great, hence wide pier footings. Other sketches on this page, by Nina Repetto, show various uses of the Dynar building; note, below, omission of part of side wall to provide spectator space; above, end balcony hung from bulkhead supports

but promising as the method seemed, cost of fabrication proved prohibitive. Attention was then concentrated on arch construction; precast reinforced concrete, rolled steel and rolled aluminum shapes were investigated. The ultimate solution was approaching, but fabricating costs remained beyond reason, at least considering that a true mass market could not be guaranteed. Eventually, after wind load tests (in a wind tunnel) and snow load calculations, after careful determination of the economies attainable at various arch spacings, etc., the present design was determined upon. It consists of laminated, glued wood arches 8 ft. on centers, stiffened and enclosed with 2 in. splined wood planking treated to maintain dimensional stability, and covered on the exterior with aluminum. End walls are bulkheads stiffened by bowstring trusses on end; the whole is much like airplane fuselage construction.

Lighting, designed in consulation with specialists, is provided by 30 special luminaires which produce 40 footcandles at playing level with a maximum variation of 10 footcandles; glare is almost non-existent. The electrical load is great enough so that most power companies would levy a substantial demand charge; hence the building comes equipped with its own generator, gasoline-driven (standard) or diesel powered (optional); being free from road use tax, the fuel is inexpensive. Warm air heating is provided by passing the generator exhaust through a heat exchanger. Air may be totally recirculated, part recirculated and part fresh, or for summer cooling all fresh. The system is designed to warm the building from a cold start — 15 or 20° F — to 68° playing temperature in a little less than one hour. Heating and lighting equipment is contained entirely within the small equipment chamber shown above.

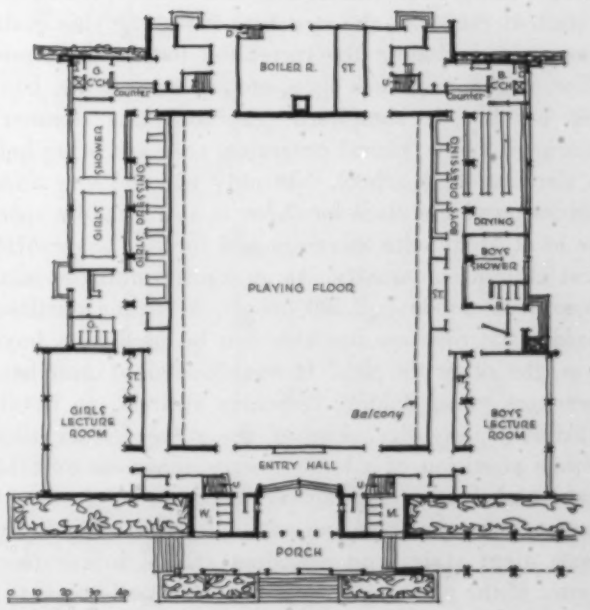




HIGH SCHOOL GYMNASIUM, FLAGSTAFF, ARIZ.

Edw. L. Varney, Wm. F. Cody, Fred'k K. Weaver, Architects; L. W. Wiese, Structural Engineer

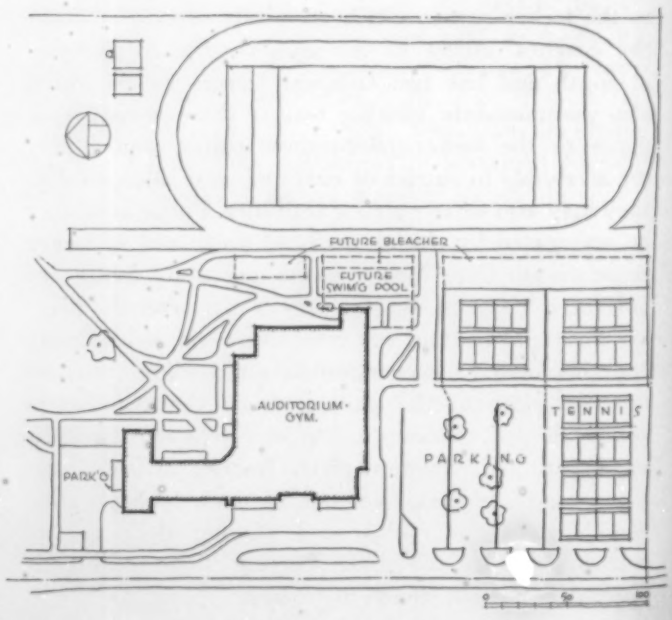
THE direct, entirely logical organization of this plan around the central playing floor is deceptively simple. Gym class and home team members can enter at the north end, pick up towels, etc., en route, and proceed to the locker rooms, which are easily supervised from the coaches' offices in the corners. Public entrance at south end has two adjacent lecture rooms which also accommodate visiting teams; these rooms have doors to the locker-toilet-shower suites, and toilets are accessible to entries on east and west sides, so that they may also serve outdoor activities. Public area may be segregated by closing doors at south end of locker room suites. Over locker rooms and main lobby are balconies. Those at the side project 4 ft. over the playing floor and contain concrete bleachers; end balcony contains folding bleachers; additional folding bleachers line the sides of the playing floor. Construction is principally of concrete, with roof trusses supported on 1½ x 3 ft. concrete piers. Roofing is insulating, over wood sheathing; ceilings of main lobby, public corridors, lecture rooms, and playing floor are of sound-absorbent material. Playing floor ceiling is applied to bottom chords of trusses.

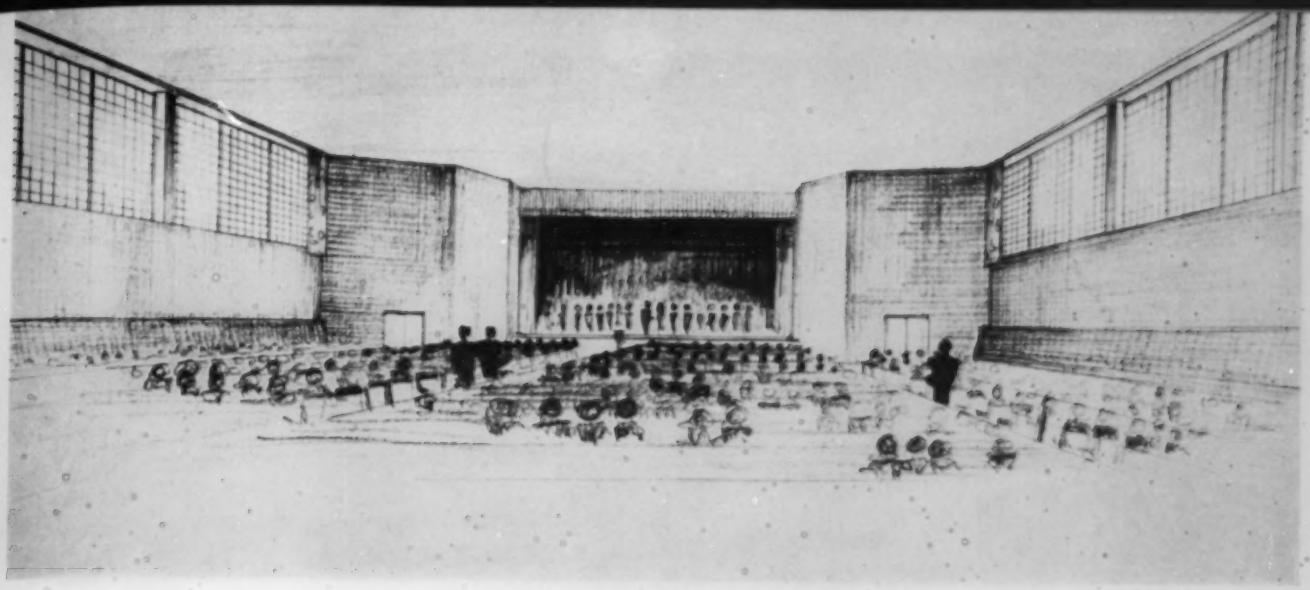


AUDITORIUM-GYMNASIUM, GOSHEN COLLEGE,

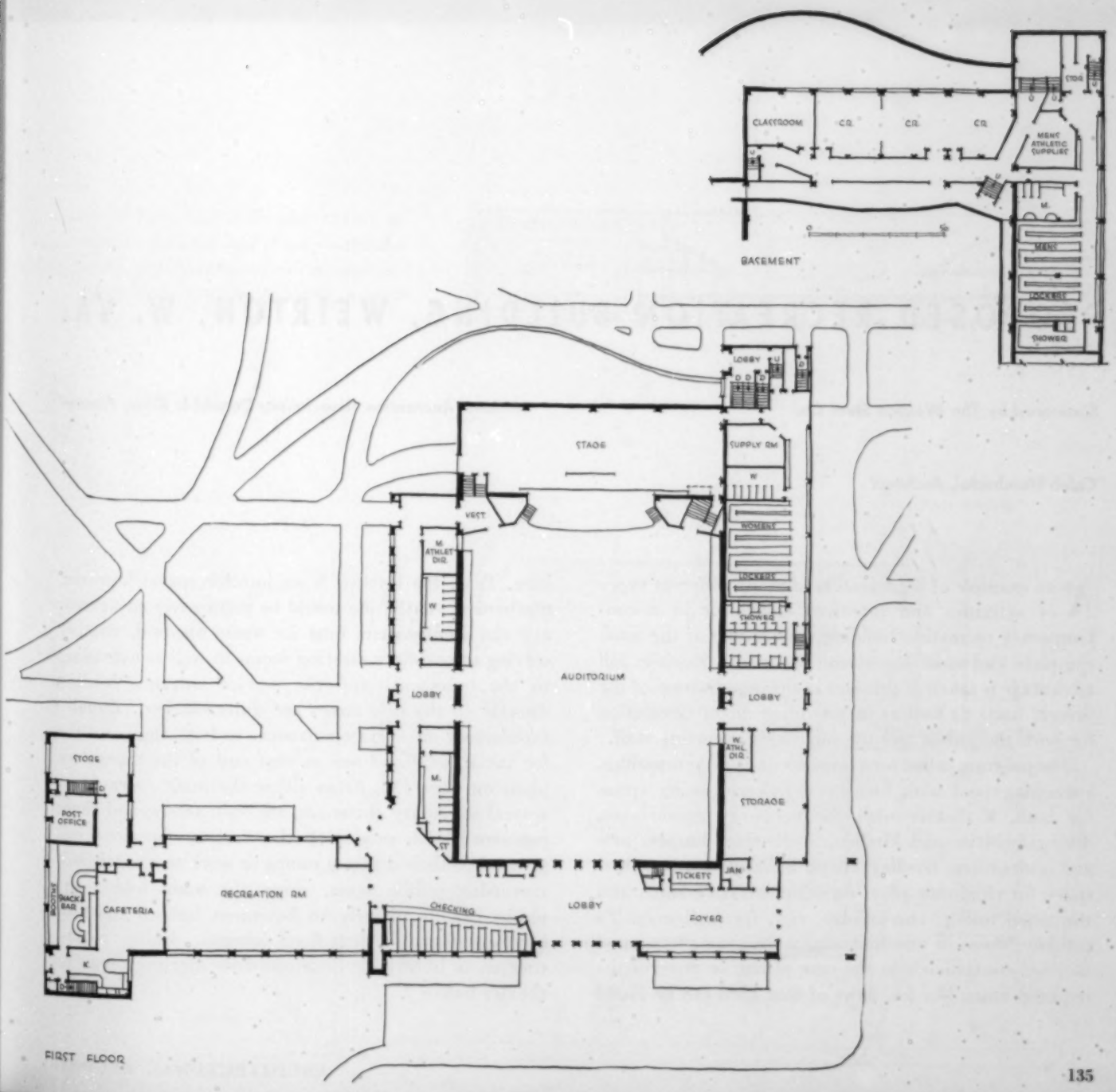
Bauer & Eash, Architects

GOSHEN COLLEGE is a coeducational Mennonite institution; its auditorium-gymnasium has to serve several purposes, and simplicity of architectural expression as well as sensible economy were among the basic requirements. The building has been designed to meet the school's daily needs for athletics and recreation, for extra-curricular activities, and for a space in which the entire institution and its connections can assemble. Since so much student interest, in a smaller college, centers around athletic facilities, incorporating a student center in the structure is logical; this is the reason for including the recreation hall, branch post office, bookstore, snack shop, etc., in the scheme. Until this building is completed (expected this summer), commencements, choral programs, etc., are being held in the local high school. Not only will the new auditorium provide a place for these; it also provides space for local Mennonite meetings and for the larger Midwest church community. As an auditorium, the main room accommodates 2,500 people. A folding partition divides the room so one side can be used as a boys' gym, the other for girls. It was decided to omit fixed bleachers, using folding bleachers entirely, to obtain maximum flexibility. Use of the room for meetings entails provision of a large storage space for portable seats and ample coat space. There is no basement except under the stage and at the double-decked locker room area; stairs and corridors at the locker room corner of the plan are arranged for eventual access to a future swimming pool and to provide separate entrances to gym, athletic fields, etc., for boys and girls. Space under the stage is used for music activities. Construction is steel framing with interior partitions mostly cinder block; ceilings are to be acoustically treated; floors are to be asphalt tile on concrete, except that the finish gymnasium floor will be maple.





GOSHEN, INDIANA



PROPOSED RECREATION BUILDING, WEIRTON, W. VA.

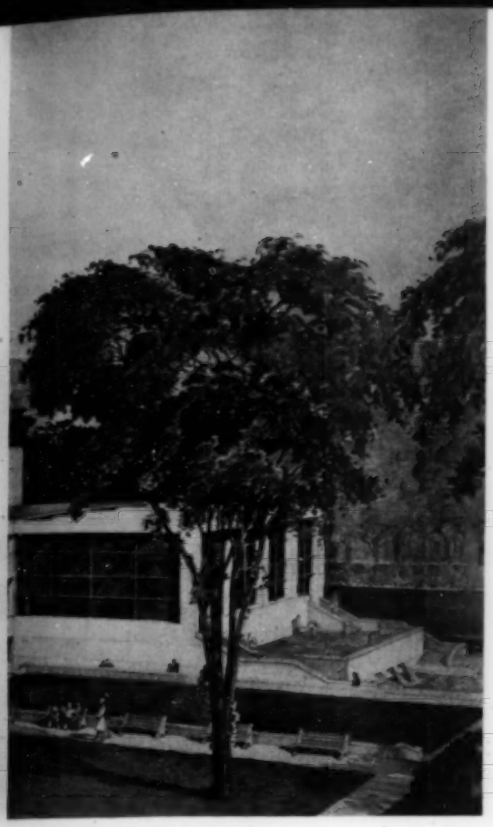
Sponsored by The Weirton Steel Co.

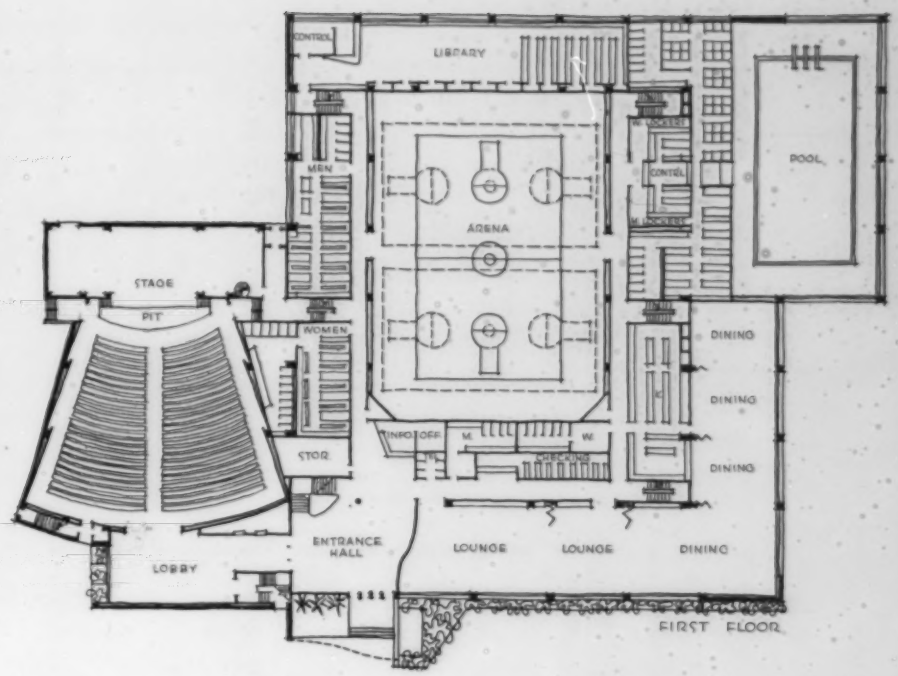
National Recreation Association; Donald L. Kline, Planner

Caleb Hornbostel, Architect

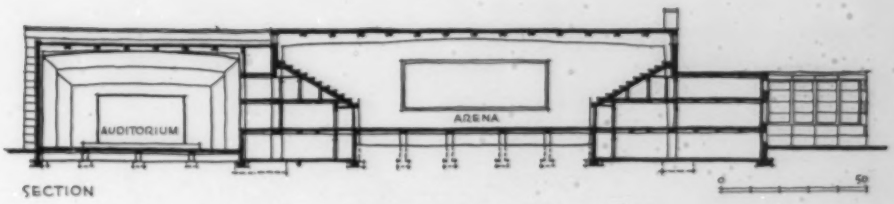
As an example of organization of many different types of activities and functions called for in a contemporary recreation building, this is one of the most complete and most ingenious. The site is sloping; full advantage is taken of this fact in the organization of the several units as well as in providing direct circulation for both the public and the building's operating staff.

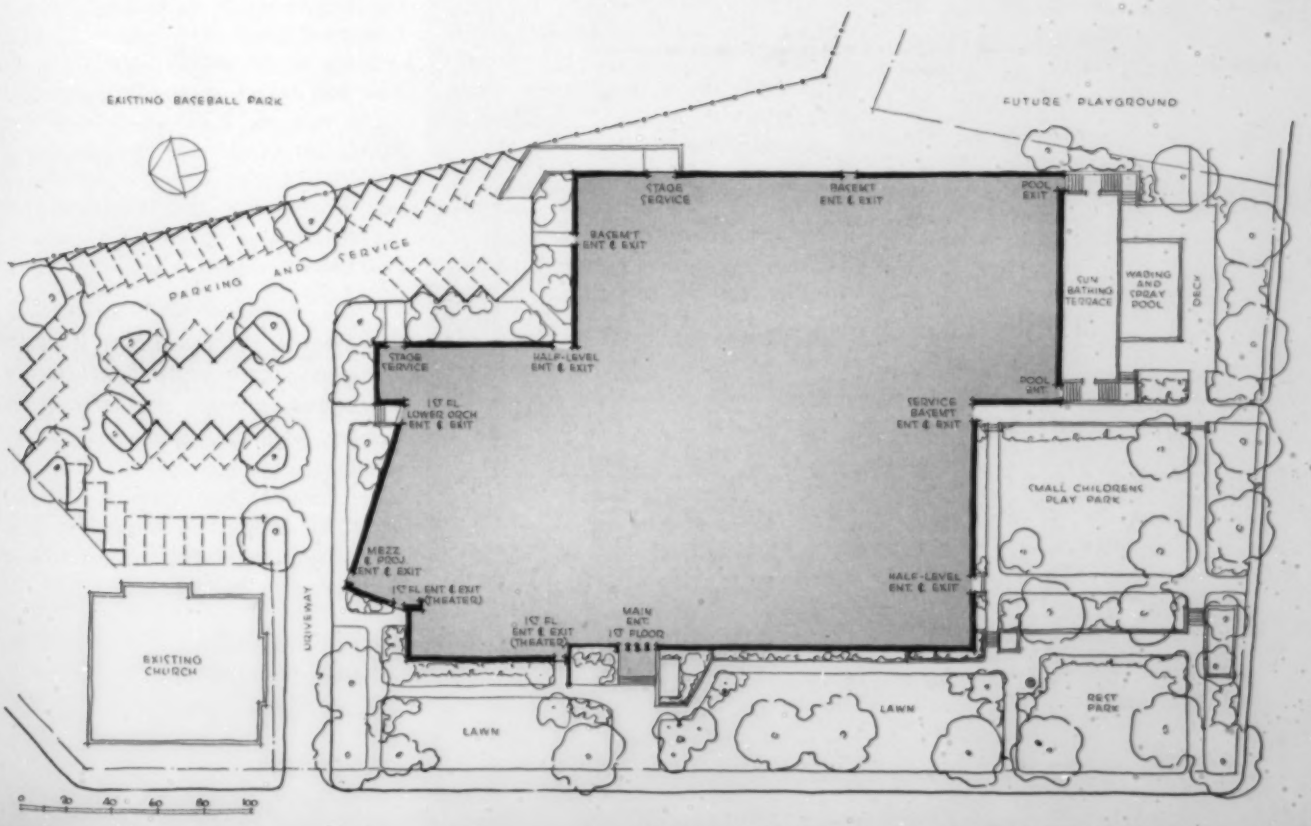
The program called for a large arena-type gymnasium, swimming pool with bleachers, locker-dressing suites for both, a theater with the necessary appendages, dining facilities and kitchen, a fair-sized library, arts and crafts room, bowling alleys, billiard room, outdoor space for children's play, an administrative suite, and the usual toilets, checkrooms, etc., for audiences. To combine these in one building, a designer often must sacrifice convenience in the case of one or more of the required units, but few flaws of that kind can be found here. True, the kitchen is an interior space; however, mechanical ventilation would be required in any event, and the dumbwaiters (one for waste disposal, another serving second-floor meeting rooms as well as extending to the basement) and the service entrance leading directly to the side street are quite efficient. Equally satisfactory are service entrances to both stages — one for the theater and one at east end of the arena; see plans on page 138. From either the main entrance or several secondary entrances, athletes, actors, and those concerned with producing the various functions can proceed to their dressing rooms or work spaces without traversing public areas. From the main lobby, the public can go directly to basement billiard room or bowling alley, to first-floor lounges, dining rooms, theater, or library, or to second-floor meeting rooms or theater balcony.

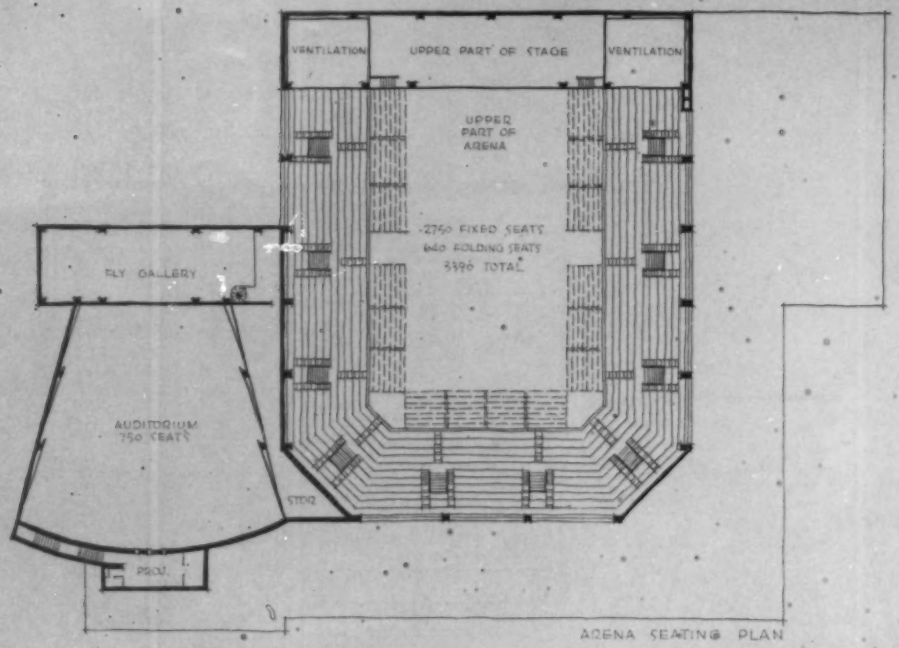




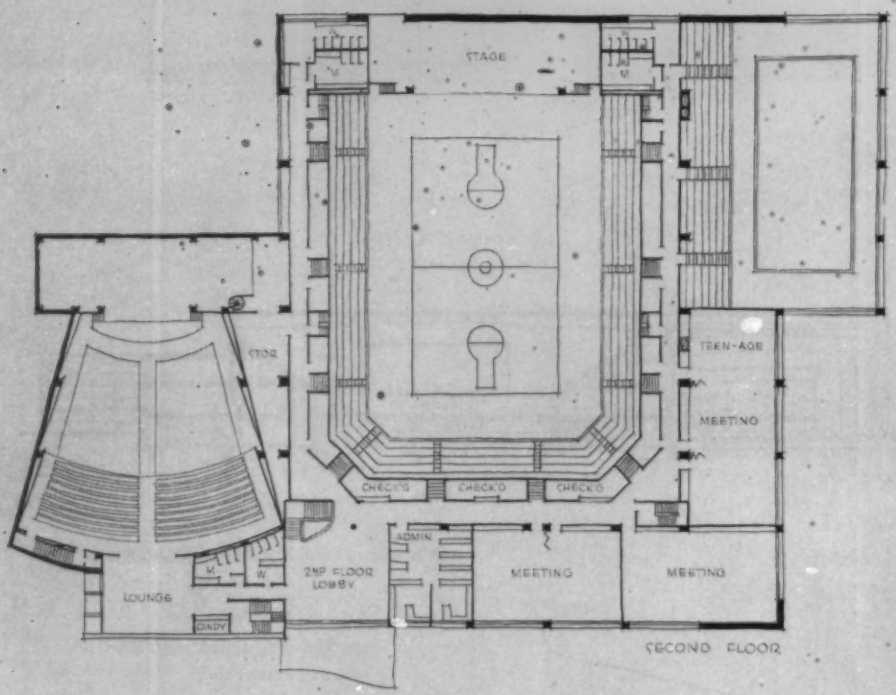
Section helps explain the ingenious use of intermediate levels and of space under the arena seating, where vomitories and corridors are located (see also plans on next page)



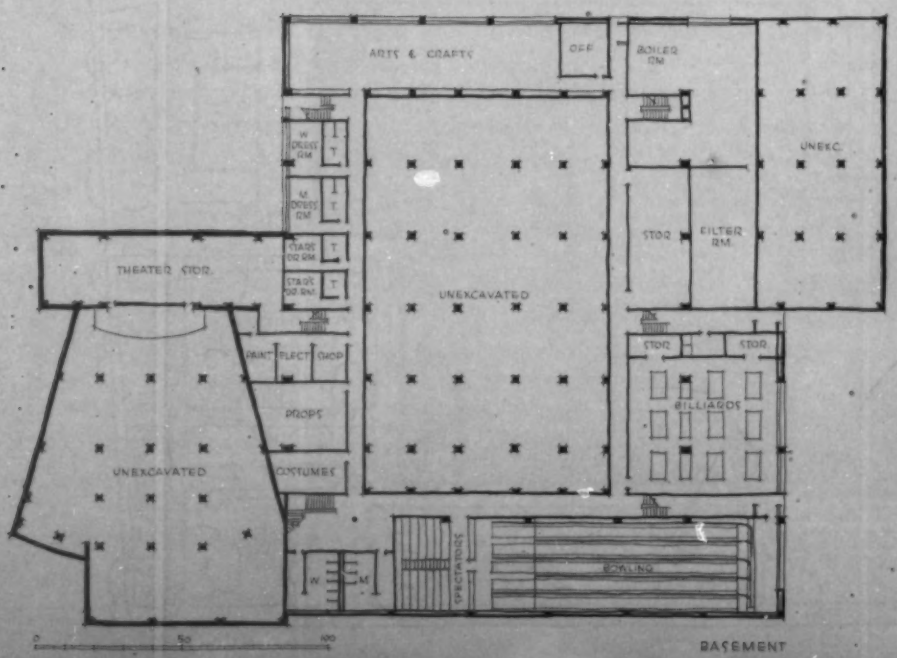




The arena-gymnasium of the Weirton Recreation Building has a combination of fixed stadium seating with vomitories halfway between top and bottom rows, and folding bleachers to be set on the arena floor



Second floor plan shows circulation under stadium seating, arena stage for pageants or large community meetings, bleachers for swimming pool audience, meeting rooms for adolescents and adults, and administrative offices



In basement, mechanical plant is located between two areas most difficult to service: arena and swimming pool. Theater has scenery, electrical, prop, and costume shops

ULTRAVIOLET AIR SANITATION

Efforts to reduce the toll of airborne diseases have been resolved in two different methods of air sanitation. The first method to be developed, ultraviolet light irradiation, is described in this article. Next month, air sterilization by a chemical vapor, triethylene glycol, which has only very recently been applied commercially, will be described.

by L. J. Buttolph

Engineering Division, Lamp Department
General Electric Co., Cleveland, Ohio

EACH winter respiratory diseases take a terrific toll in lost working time, doctor and medicine bills and in just plain discomfort. During the summer when people are outdoors more and leave windows open, colds and other airborne infections decrease greatly. So it is believed that for the prevention of respiratory diseases indoors in winter, an air purity such as that of summer living must be provided. This could be accomplished by having 60 to 120 fresh air changes an hour, but such high ventilation rates are not practical from the standpoint of draft, noise and cost.

Tests have shown that the equivalent effect of these high ventilation rates can be obtained by disinfecting the air with ultraviolet light from germicidal lamps. The germicidal effects of ultraviolet light have been known and used for 40–50 years. They are now of renewed interest because of the recent availability of sources having 5–10 times the efficiency of older ones and of a form adapting them to the entirely new application of air disinfection or sanitation.

Acceptance of Air Sanitation

The Council on Physical Medicine of the American Medical Association has accepted the use of germicidal lamps in hospitals on the basis of tests in infant wards. Even such general respiratory diseases as colds and influenza have been reduced by as much as 25–35 per cent in Navy barracks and institutions where it is possible to provide disinfected air most of the time the subjects are indoors. Continuing studies in schools indicate that the spread of such respiratory diseases as measles and chicken pox is modified to the extent of prevention of epidemic or explosive spread of those diseases. It is believed that the spread of colds and influenza is similarly prevented in the school rooms even though they still spread outside of the schools to mask the school prevention. Ultraviolet air disinfection is being used in many schools, offices and factories as a general sanitary precaution in much the same spirit in which natural ventilation, smothering of coughs and sneezes, a minimum of drafts, adequate clothing, dry feet and sleep are all emphasized during the winter respiratory disease season. Even in such public places as theaters where there is no possibility of statistical evidence of value, because of the small amount of individual time spent there, partial sanitary ventilation is being provided in newer theaters by two or three times the usual mechanical ventilation. This again is a sanitary precaution along with improved dust disposal.

The American Public Health Association has a Research Subcommittee on Air Sanitation and the American Society of Heating and Ventilating Engineers has a Technical Advisory Committee on Air Sterilization, and in a recent survey of membership interest its Research Committee found this subject sixth among 33, being exceeded in order of interest only by such timely subjects as radiant heating, radiant cooling, the heat pump, noise control and odor control.

A comparable British interest in air sanitation is indicated by a comprehensive paper titled "Methods for Maintaining Bacterial Purity of Air", by R. E. O. Williams of the Central Public Health Laboratory, *Journal of the Institution of Heating and Ventilating Engineers*, Vol. 16, No. 162, January 1949.

What Air Sanitation Is

While all air cleaning is doubtless of sanitary significance the terms "air sanitation" and "sanitary ventilation" seem to have been preempted to describe air purification for the specific purpose of reducing the spread of disease or the contamination of products. To be of significant sanitary value, ventilation must be equivalent to that of summer outdoor and indoor living and so, for example, 10 to 20 times the ventilation rate that is minimum for odor control and maximum for economy in school rooms, 5–6 air changes per hour (30 cfm per child). The problem is not, however, the simple one of cleaning up the air in vacated rooms but the dynamic one in crowded rooms of killing or removing the bacteria and viruses as

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Ultraviolet lamps installed inside air ducts disinfect recirculated air, providing an equivalent of 20–30 fresh air changes per hour

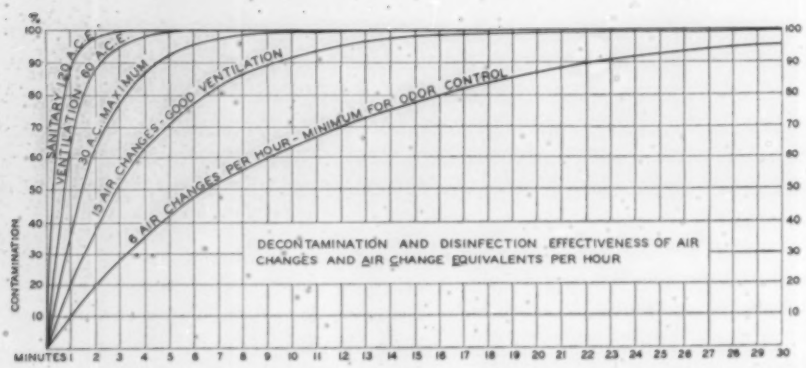
rapidly as they appear from the noses, throats, handkerchiefs and clothing of the room occupants. Specifically it is the problem of maintaining such a condition that no one disease germ has a chance of being alive or in the room more than a minute or two instead of the 30 or more minutes possible with usual good ventilation. The dynamic condition is difficult to show graphically but the theoretical rates of air decontamination in a vacated room, Fig. 2, are instructive.

There has been recent publicity of the sanitary value of sunlight, even after transmission through ordinary window glass, based on British studies of dust contamination in typical hospital rooms with and without direct sunlight exposures. While it is true that hours of exposure even to filtered sunlight significantly reduce the contamination of the floor dust, this effect is less even than that resulting from the small amount of germicidal ultraviolet reflected downward from the ceiling of any installation of germicidal lamps for disinfection by the upper air method.* Fig. 3 is instructive as to the relative germicidal effectiveness of the 2400–2800A† wavelengths (germicidal lamps 95 per cent 2537A) and the visible 4000–7000A wavelengths, a ratio of about 10,000 to 1, requiring exposures of hours instead of seconds for comparable germicidal effects.

*Carl Erikson reported in the May RECORD ("Tomorrow's Hospitals") that the germicidal lamp can be used to sterilize inside areas more effectively than any amount of sunshine through windows.

†A, symbol for Angstrom unit=one-hundred-millionth of a centimeter.

Top: theoretical rates of air disinfection in a vacated room. High air change equivalents are attained with ultraviolet lamps. Bottom: illustrates relative germicidal effectiveness of ultraviolet (up to 3800A) and visible light


SANITARY VENTILATION 120 A.C.E.
60 A.C.E.
30 A.C. MAXIMUM
15 AIR CHANGES - GOOD VENTILATION
6 AIR CHANGES PER HOUR - MINIMUM FOR ODOR CONTROL
DECONTAMINATION AND DISINFECTION EFFECTIVENESS OF AIR CHANGES AND AIR CHANGE EQUIVALENTS PER HOUR
CONTAMINATION
MINUTES

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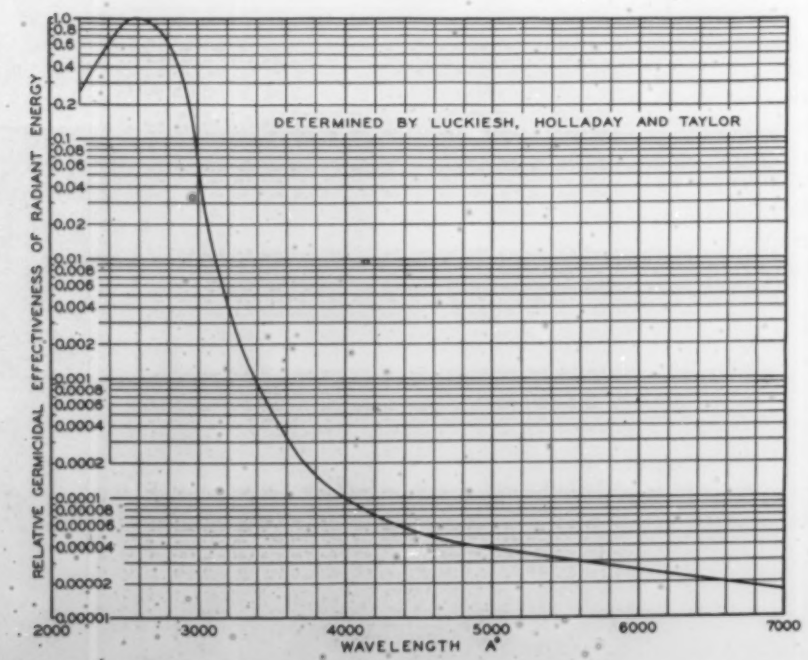

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How Air Sanitation is Accomplished

It is probable that the sanitary ventilation requirement varies about inversely as the cubic feet of space per occupant, which means that in places where there may be 2000 to 3000 cu. ft. of air per occupant as in the home or in spacious offices, instead of 200–300 cu. ft. per person as in standard school rooms, one-tenth as much ventilation may be needed, and 6–12 air changes per hour may be sufficient and practicable although seldom supplied by ordinary ventilation. Sanitary ventilation for various degrees of crowding or occupancy may be by a direct disinfection of all the air by germicidal ultraviolet or germicidal vapors, by dilution with outdoor air, which practically never carries human disease organisms no matter how polluted it may be otherwise, or what amounts to the same thing, by dilution with disinfected recirculated air. Disinfection of a part of the air to be used as a diluent of the remainder, may obviously be by filtration, washing or ultraviolet irradiation. Filtration has not been practical because the more important components of the bacterial population are too small in size to be effectively removed without the use of filters impractically oil wet or of impractically high resistance, or both. Although relatively effective when exceptionally well maintained, electrostatic air filters can be justified for air disinfection only when secondary to an essential removal of dust. Air washing has not been practical because of the impracticality of changing water often enough to prevent it from returning to the air as many bacteria as are removed (interesting cases of air contamination have resulted from the use of contaminated water for air humidification and washing).

Direct Ultraviolet Disinfection

Direct disinfection of room air may be by saturation with a germicidal vapor such as triethylene glycol or by direct irradiation with germicidal ultraviolet, the latter the subject of this paper. Intensities of ultraviolet not irritating

to an infant's continuously exposed face, less than 0.1 ultraviolet milliwatts** per sq. ft., are of a limited value, comparable with that of sunlight filtered through window glass, and equivalent to about 2–3 air changes per hour in reducing the air-borne germs in hospital ward rooms. Intensities tolerated on adult faces exposed 7–8 hours per day, less than 0.5 ultraviolet milliwatts per sq. ft., are of somewhat more value, comparable with direct sunlight perhaps, and equivalent to about 10–15 air changes per hour in a school room. Added to the usual five natural air changes provided by door and window leakages and by the usual make-up air in air conditioning the total of 15–20 may be of sanitary value in uncrowded offices and places of transient occupancy.

Where such places are also served by air heating or conditioning ducts, ultraviolet disinfection of all the recirculated air is of even more value, and equivalent to a total of 20–30 air changes per hour. An ultraviolet intensity sufficient alone to provide the air disinfection equivalent of 60 air changes per hour (2–3 ultraviolet milliwatts per sq. ft.) could be tolerated on the average face for only about one hour. Where ceiling heights permit, it is possible, however, to obtain a considerably more effective and economical sanitary ventilation by the upper air method to be described later.

** *A typical, commercially available 30-watt germicidal lamp and its ballast taking approximately 40 watts electrical input will produce 7 watts of germicidal ultraviolet.*

Air Disinfection in Ducts

Contaminated air recirculated in ducts may be disinfected there by ultraviolet irradiation or by vaporization of glycol. Ducts provide a convenient place from which to vaporize and distribute glycol vapor but the air disinfection there is of little value compared to that secured in the rooms served when the glycol content has been built up nearly to saturation. Ducts also provide a convenient place to install germicidal tubes providing ultraviolet intensities high enough, 3–10 ultraviolet watts per sq. ft., to completely disinfect all the duct air in the fraction of a second of passage through the irradiated zone, usually a plenum chamber. It is important to note, however, that in the rooms served by such ducts the air disinfection is limited strictly to the dilution provided by the disinfected duct air. Insofar as any sanitary value may have been credited to the usual provision of make-up air, that value is increased about five-fold by disinfection of the recirculated air.

For ducts whose greater dimension does not exceed the lesser by more than 50 per cent, and with nonreflecting walls, the ultraviolet watts for a theoretical 99 per cent disinfection of respiratory disease germs and viruses is shown on the Haynes' chart, Fig. 4. Relative humidities in excess of 65 per cent and extremes of air temperature increase the ultraviolet requirements.

The number of germicidal tubes required may be determined by dividing the total watts by the average-through-life rating in ultraviolet watts of any commercially available germicidal lamp. The chart may be interpolated and extrapolated by noting that the ultraviolet watts required are directly proportional to the cubic feet per minute and inversely proportional to the lesser dimension of the duct.

In the frequent case of flat ducts having one dimension two or more times as great as the other there should be reference to more detailed methods of calculation available elsewhere, but the maximum tube requirements may still be determined from the preceding tables by subdividing the duct and the air capacity so that the dimensions of the subdivisions fall within the range of the tables.

The mechanical details of a germicidal tube installation follow closely those of the dust-filter installation and it is anticipated that manufacturers will provide similar standard-unit assemblies. Although there are many ways of in-

Left: ultraviolet energy requirements for duct disinfection. Right: schematics of suggested germicidal lamp installations in air ducts

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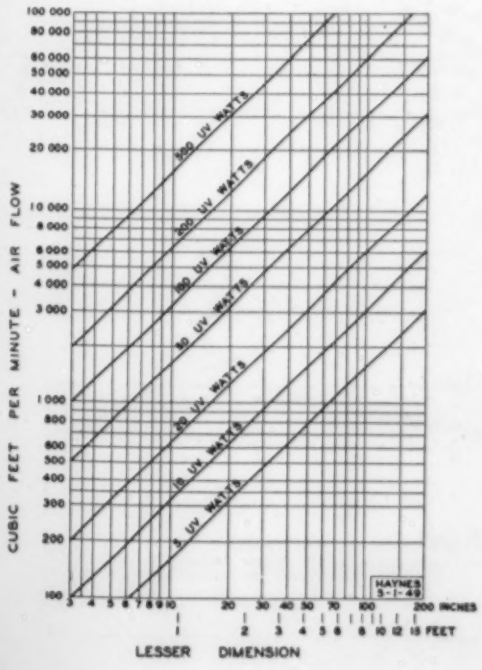

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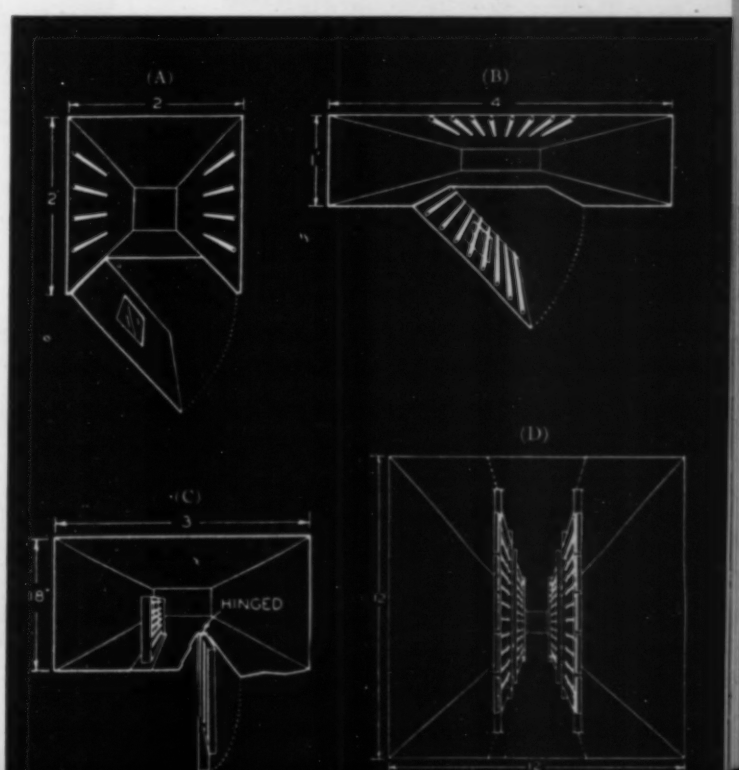

stalling germicidal tubes in air ducts, the best compromise in small ducts is by placing them lengthwise on the duct wall, on 4-to 5-in. centers grouped in the center half of the duct walls and out of the corners of rectangular ducts. The duct walls near the tubes and the duct in both directions from them should be of polished chromium plate or aluminum if the conditions are such that the reflective duct walls can be easily cleaned whenever the lamps are cleaned. Since the germicidal tubes must be kept reasonably free of dust, there must be convenient access for cleaning. This usually can be arranged by hinged panels on the sides or the bottom of the duct, and, if necessary, the tubes may also be mounted on these panels as well as on the stationary duct walls, Figs. 5A and C.

In large ducts and plenum chambers germicidal tubes may be assembled like the rungs of a ladder in vertical frames supported out in the center of the chamber in whatever series or multiple arrangement best fits the local conditions and provides access for cleaning and replacement, Fig. 5D. In very large ducts, where the air speeds are relatively low, the tubes should be so placed, when possible, as to provide a maximum average distance from the tubes to the duct walls in directions perpendicular to the tubes, and regardless of the direction of air movement.

There is a special installation problem in case of flat ducts which may have one dimension four to six times the other. Such a duct cross-section limits the effectiveness of the tubes not only in proportion to the lesser dimension, but also because little of the duct volume beyond the actual location of the tubes is useful for air irradiation. In such cases the tubes should be distributed only over the longer duct wall shown in Fig. 5B.

Fig. 1 shows a typical large duct installation providing a total of 120 ultraviolet watts, average through tube life, from germicidal tubes placed adjacent to the dust filters.

"Upper Air" Method

The free convection in rooms, basic to all warm air heating without forced convection, is by random intramural air currents at velocities of 5–25 ft. per minute or 1–6 in. per second. This imperceptible air movement through a horizontal plane 7 ft. from the floor, for example, is remarkably effective in providing an interchange of air between the room volumes above and below that plane and amounts to an air change per minute or 60 air changes per hour, in the lower air, at an average air velocity of less than 15 ft. per minute (3 ft. per sec.). This may be a difficult concept for those who associate one-tenth that rate of air change with duct air velocities 10–50 times greater.

If it were possible to have all fresh air above the 7-ft. level, with same air interchange as described above, the sanitary ventilation of the remaining lower part of the room would be provided. The bacterial equivalent of this condition can be approximated by ir-

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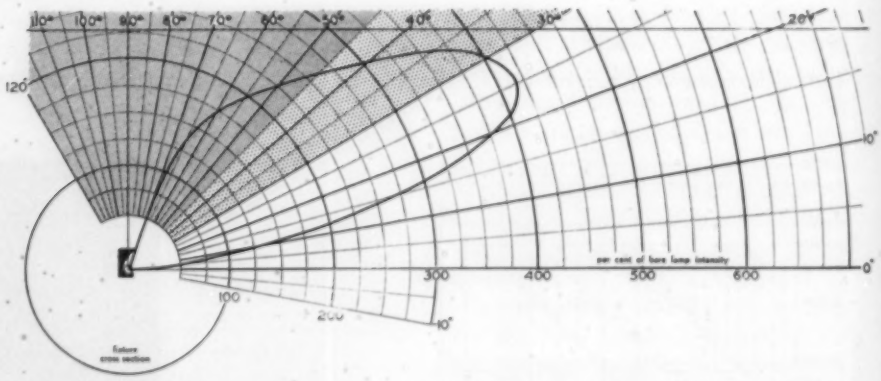
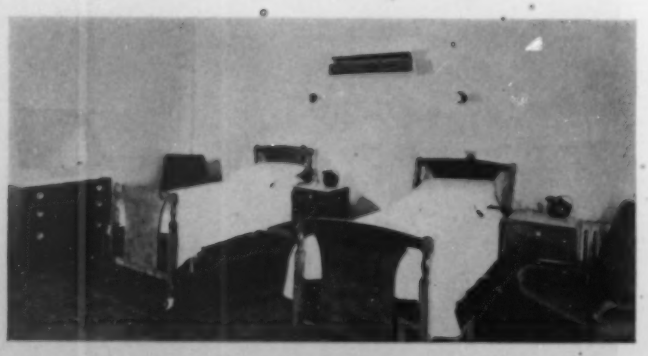


Fig. 6: spatial distribution of ultraviolet light from a typical louvered fixture. Fig. 7: typical hospital ward installation with louvered ultraviolet lamp fixture. Fig. 8: installation schematic of louvered fixture, showing correct height



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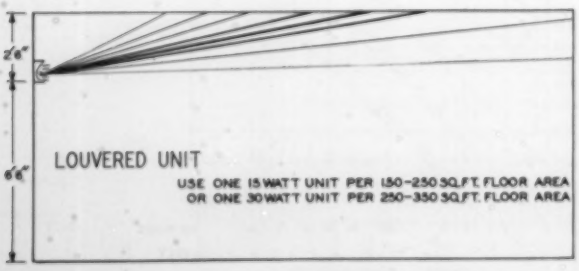

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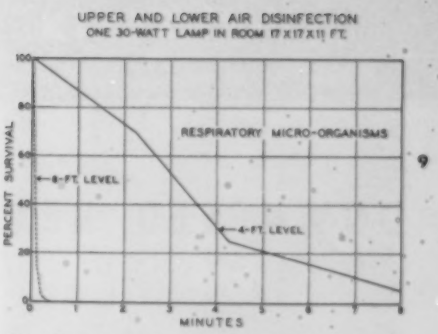
radiating the upper air with ultraviolet of an average intensity of 20 ultraviolet milliwatts per sq. ft. That keeps the average bacterial content down to a few per cent that of the lower air which has already been diluted to a low bacterial content by the reciprocal process of disinfection above and dilution below the effective level of the ultraviolet sources.

Recent studies by M. Luckiesh and Associates have shown dramatically the effectiveness of this two-stage process of air sanitation. They did continuous air sampling of the irradiated upper air at an 8-ft. level and of the diluted lower air at a 4-ft. level, during continuous air contamination, in excess of that humanly possible in a crowded room, by atomization of diluted sputum. The instant the irradiation began, the concentration of bacteria in the upper air dropped rapidly to an undetectable level in about 20 seconds and remained there in spite of the continuous contamination from below, Fig. 9. This disinfection of the upper air made the air interchange immediately effective in diluting the contamination below, to equilibrium at a low level of less than 5 per cent the initial contamination in about 10 minutes. Thereafter this air disinfection by dilution, of over 95 per cent, was maintained indefinitely in spite of the continuous contamination by atomization.

These laboratory results can be duplicated with practical installations of commercially available equipment usually mounted 6½–7 ft. from the floor on side walls or columns. Combined germicidal and fluorescent lighting fixtures are practical only under unusually high ceilings, over 12 ft., because of the objections to suspending such units low enough to make the germicidal tubes effective.

The only general installation problem is that of the low ceiling, less than 10 ft., which reduces the volume of upper air available for irradiation and which increases the intensity of the ultraviolet scattered downward to the faces of room occupants by the ceiling's ultraviolet reflectance which cannot be reduced below about 5 per cent. How serious the problem is is further dependent upon whether there is continuous exposure of room occupants, as in a hospital ward, or only about one-third of the time per day, as in a school room or office.

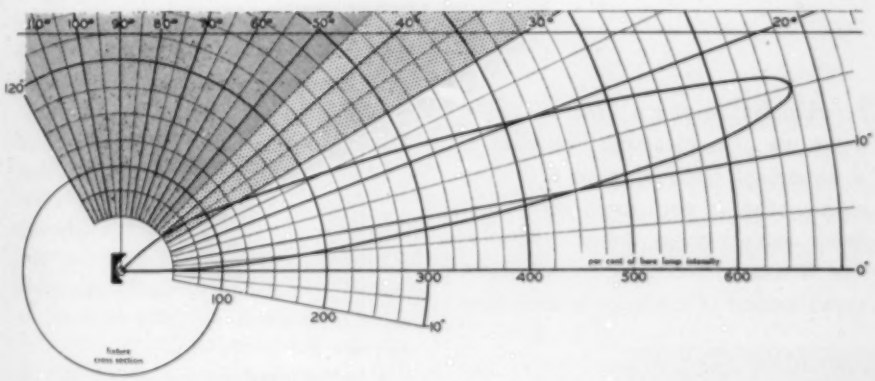
All germicidal fixtures for upper air irradiation from room side walls must have very carefully designed and fabricated cylindrical parabolic reflectors, of specular chromium plate or preferably of electrolytically treated pure aluminum, to project a fan shaped distribution of energy through the upper air as far as possible before absorption in the ceiling or reflection from it to room occupants.



Effectiveness of germicidal tubes in the upper and lower air spaces of a room with continuous bacterial contamination

Wherever there may be continuous exposure of the occupants, louvers must be added to the reflector to intercept all energy directly from the germicidal tube and above an angle of about 40° from the horizontal. Wherever, further, there may be continuous exposure under ceilings of less than 9 ft. as in home bedrooms, only louvered fixtures containing germicidal tubes of less than 3 ultraviolet watts output rating should be used. Figs. 6, 7 and 8 show the spatial distribution, schematic installation suggestions and a typical hospital installation. Such fixtures project 25–35 per cent of the ultraviolet output of the tube in a direction of maximum intensity 10–15° above the horizontal.

(*Continued on page 186*)



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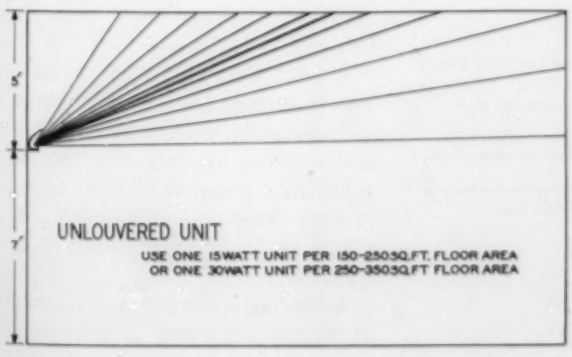

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Fig. 10: spatial distribution of ultraviolet from a typical open fixture. Fig. 11: installation schematic of an open fixture. Fig. 12: typical school room installation. Note difference in height for the louvered and open fixtures

By Lewis Smith, C. A. Dunham Co., Chicago

DOWNFEED HEATING CUTS COSTS IN APARTMENTS

Combines installation and operating economies with weather control

Widespread use has been made in such large-scale apartment projects as Fresh Meadows, Peter Cooper Village and Stuyvesant Town of a steam heating system that approaches the installation economy of a one-pipe steam system, and at the same time automatically responds to changes in the weather and keeps fuel and maintenance costs at a minimum. Demonstrated first at the Parkchester development in the Bronx, New York, it has been applied since at Riverton, Clinton Hill and Webb Housing projects in addition to the ones already mentioned.

The essential departure from ordinary methods is that in the "Metro" * system, as it is called, a riser is run down through a tier of over-lying rooms, and this riser is offset in each room, each offset being made into a convector, thus providing a single and uninterrupted path for the flow of steam from top to bottom (see sketch). No valves or traps are used at the convectors — the only trap is at the bottom of the riser in the basement. Steam usually is fed to the top of these risers from adjacent heat risers in bathrooms or kitchens, but they may be fed from an attic steam main.

Among the attractive features of this system are: (1) There are no traps or valves in occupied spaces to be serviced or to stir up complaints. All traps are in the basement and can be serviced during the summer. The "handy man" doesn't have to go into the apartments for repairs or adjustment of the heating equipment.

(2) No provision has to be made for expansion. The only possible expansion is that which occurs between floors — about 1/8 in. — which is absorbed in the flexibility of the risers. Each convector element is supported on each floor (see small sketch).

(3) From the construction and maintenance viewpoints, the most striking feature is the absence of all radiator branches. These branches are expensive to install, and very often room cannot be found for them without costly furring out of walls or ceilings. It is these branches with their multiplicity of small fittings which are the first to give out from the effect of mechanical strains and corrosion.

Heat output is controlled by circulating steam through the risers and convectors at variable sub-atmospheric pressures. In zero weather and for heating up rapidly on cold mornings, steam is circulated at 2 lb. pressure or 215F. As the weather moderates, an automatic control throttles the steam supply more and more, causing a greater and greater vacuum in the system and consequently a lower and lower steam temperature in the convectors. This reduction may be carried on until steam temperatures of 133F and less are reached in 55 to 60F weather, beyond which it is customary to shut the steam off manually.

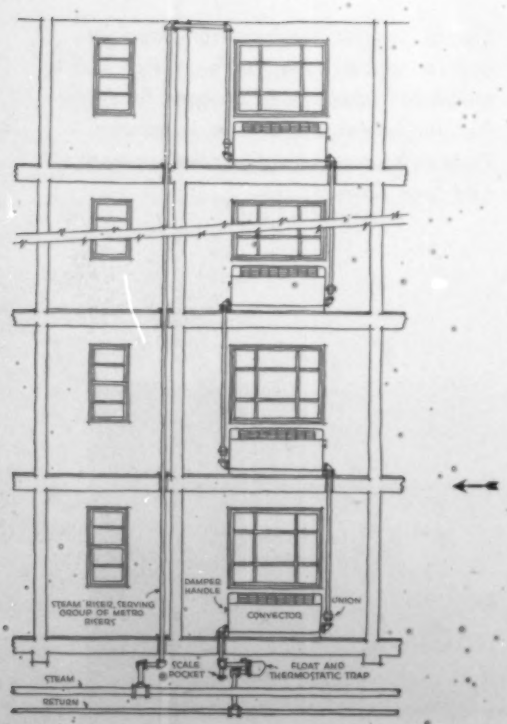
The control system consists of a selector, heat balancer and a valve in the steam main. The selector is a resistance-type thermostat, attached to the inner side of a north window (to avoid the sun), regulating the steam temperature according to the outside temperature. The balancer measures the amount of heat being supplied to make sure that it meets the demand of the selector. Whenever the demand and supply are out of balance as indicated by the selector and balancer, the steam main valve is operated to either increase or decrease the steam supply.

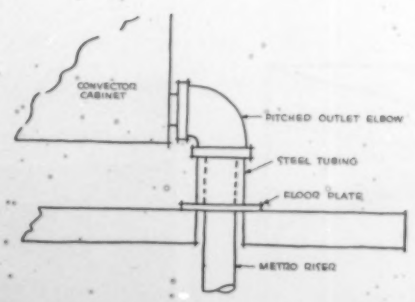
A vacuum pump maintains a greater vacuum in the return line than in the steam main causing steam to flow through the risers down through the drip traps at all times.

A small heat exchanger is connected into the return line before it enters the vacuum pump to heat domestic water and condense any vapor in the return, permitting pump operation at exceptionally high vacuum with reduced hours of operation and savings in electricity.

Additional control means are provided at the convector itself in the shape of a

* "Metro" is fully covered by patents issued to the author and assigned to Henry G. Schaefer, the present owner. The equipment required is being manufactured and sold by the C. A. Dunham Company under an exclusive license.





Essential feature of the "Metro" system is the use of a continuous riser running down through a tier of rooms (left). The riser is offset in each room, each offset being made into a finned convector. Riser is trapped in basement. Small sketch shows support of convector at each floor

damper. Closing this damper reduces the heat by 30 to 40 per cent which is a greater reduction than any tenant would want, when it is remembered that the steam control has already kept the heat down to conform with the requirements. The tenant may in fact adjust this damper in intermediate positions. If the steam control has been set to give a temperature of say 74 or 75F in the various rooms, the tenant can make his own reduction below that level.

What about cost? This question cannot be answered by giving a cost per sq. ft. of radiation, or per apartment or room, because of the obvious variables. Nor can the answer be made that it costs more or less than other heating systems without first defining the word "other."

If comparison is made with a one-pipe system with radiators in the corners of rooms and no temperature control, then "Metro" will cost more. If, however, comparison is made with 2-pipe systems using convectors or radiators under the windows (where they belong) and with valves and traps, and adequate temperature control, then "Metro" will cost less.

How much less can be answered only by examining a particular project, as to its size, height of buildings, arrangement of rooms and windows, etc. Definite figures have been obtained on some closely similar 13-story apartment buildings with central plant showing that "Metro" actually costs up to 20 per cent less for these completed installations. This saving will obviously be less for low buildings. Even if there is no saving in first cost, the annual saving in maintenance as explained in the next paragraph, justifies its use.

"Cost of installation" cannot be considered alone — cost of operation and maintenance also must be taken into account. It is plain that for a 10-story building there will be only one instead of 10 traps per riser, hence the cost of trap maintenance is reduced 90 per cent. Since there are no radiator valves at all, this item of maintenance is eliminated. With no radiator branches there will be a saving in repairs here, but figures would be difficult to set up. As to fuel cost, the type of control used is credited by reliable sources as resulting in the lowest possible steam consumption and hence fuel cost.

If, then, this system has the advantage of lower first cost, lower maintenance cost and minimum operating cost, coupled with satisfactory heating, why isn't it universally used?

There are a number of reasons. If buildings are irregular in layout, that is do not have typical floors, or do have frequent set backs, "Metro" may be difficult to apply. Some types of wall construction, particularly as to the windows, interfere with proper installation and either run up the cost or require convectors of larger capacities than can be incorporated in cabinets or handled on risers.

As commonly used, riser pipes are installed exposed along side the windows — alternating on each floor. The cabinets are usually hung from the window sill. An off hand expression of opinion is that exposed pipes could not be tolerated, but this objection usually vanishes upon inspection of an occupied apartment using the system. If the extra cost is not objected to, however, the risers can be concealed and the convectors recessed.

Baseboard convectors may be used to advantage where the windows are very wide and especially with low sill heights.

Some people think that the bottom convector of a riser will fill up with water, and that at best there will be a considerable difference in steam temperature, and hence the heat output, between the top and bottom convector of a high riser. This is not true. Consider a 15-story building with 40 sq. ft. of radiation per room, a total of 600 sq. ft. on the riser. There will be at most only a little over 1 qt. of water per minute passing through the bottom convector and normally much less. With the drip trap having a capacity of practically 1 gal. per min., it is self-evident that no water will remain in the bottom convector and that such a small trickle of water will be lost in a 1½-in. pipe used in the convector heating element. As to temperature difference, the pressure loss in the riser is the only factor involved and this loss is so small as to be negligible.

While "Metro" has so far been used in apartment houses, there is no good reason why it cannot be used to equal advantage in office and loft buildings and warehouses.

Kitchens, as shown above, and bathrooms are heated by exposed steam risers which connect into downfeed risers at the top of each tier of living rooms and bedrooms

Living room of apartment at Fresh Meadows showing the "Metro" convector. The riser is behind the drape to the left of the window and is sleeved through the concrete spandrel above the window. Heat rising from the convector blankets the window to prevent cold down drafts and cold floors. There is no obstruction under the cabinet, heating element is finned pipe

PRODUCTS for Better Building

In laminated, dry wall method, first layer of Sheetrock is nailed in customary fashion to joists, studs; second layer is held by adhesive and temporary nailing, later countersunk

LAMINATED WALLBOARD

Sheetrock fireproof wallboard is used in a double-wall system of residential construction developed to give greater fire protection and more resistance to abuse than other types of dry wall.

After conventional vertical application of a layer of Sheetrock to the studs and joists, each board of the face layer is covered and combed with bonding adhesive and then applied horizontally and temporarily held in place with nails to insure bond between the layers.

Nails are countersunk after the adhesive is dry. Joints are concealed with the manufacturer's Per-A-Tape joint system, which is said to render the entire wall and ceiling surface smooth. Use of laminated Sheetrock wallboard is reported to insure stronger walls which will remain crack-free for the lifetime of the house. United States Gypsum Co., 300 W. Adams St., Chicago, Ill.

PLASTIC DAYLIGHTING

An answer to the problem of providing adequate and economical daylighting in a large industrial structure has been found in the adoption by the National Tank Co. in its new plant at Tulsa, Okla., of translucent *Fiberglas*-plastic sheets for skylights and windows.

Known as *Alsynite*, the corrugated sheets are made of Fiberglas mat impregnated with Laminac resin. They can be sawed and nailed with ordinary tools, punched or drilled and fastened in place with ordinary sheet metal screws or bolts. A special translucent mastic is available for weather proofing lap joints.

Although light in weight — about 8 oz. per sq. ft. — the sheets are described as strong enough to sustain weight of a snowfall and as unaffected by climatic conditions.

Alsynite is said to admit sufficient natural daylight for most of the operations conducted in the plant. Allied Synthetics Co., San Diego, Calif.

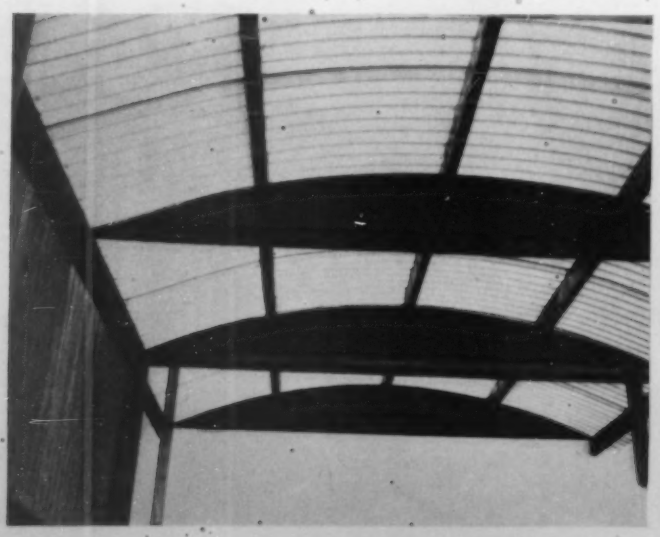
AID FOR DRAFTSMEN

An instrument to simplify the creation of perspective drawings, the *Perspect-O-Metric*, has been designed to be attached to any drafting machine, or to parallel ruling straight edges.

The instrument is reported to guide the draftsman's pencil automatically toward the established vanishing points

(Continued on page 174)

Corrugated Fiberglas-plastic sheets that can be sawed and nailed provide daylighting for Tulsa, Okla. industrial plant. Left: shows how sheets are fastened to steel rafters of entrance to mill building. Right: the translucent sheets used as skylights



Michigan State College Union Building Cafeteria — Ralph Calder, Architect

Food Service Awards Prove VAN Versatility

● Van is proud that Van clients have been in the "vanguard" of food service operators recognized by the boards of experts of the magazine INSTITUTIONS in its competitions *since they were inaugurated!*

● A parade of Grand Awards . . . in 1947 Mills Restaurant of Cincinnati . . . 1948 Hotel Roanoke of Virginia . . . 1949 Michigan State College Union Building Cafeteria . . . next year perhaps a hospital Van-equipped!

● Mills Restaurant of Cleveland generously shares with Van credit for its 1949 Award of Merit from INSTITUTIONS.

● The whole three year roll of Van client honors is fresh evidence of that versatility for which Van is famous . . . in all kinds of food service establishments.

● This succession of awards to Van clients has real meaning for hospital administrators, their dietetic staffs and architects, who want the best. Van's pioneering of kitchen equipment design and manufacture has again been given national recognition.

● If you are planning food service equipment improvements, Van will deem it a privilege to share its century of experience.

Mills . . . Cleveland

The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

DIVISION OF THE EDWARDS MANUFACTURING CO.

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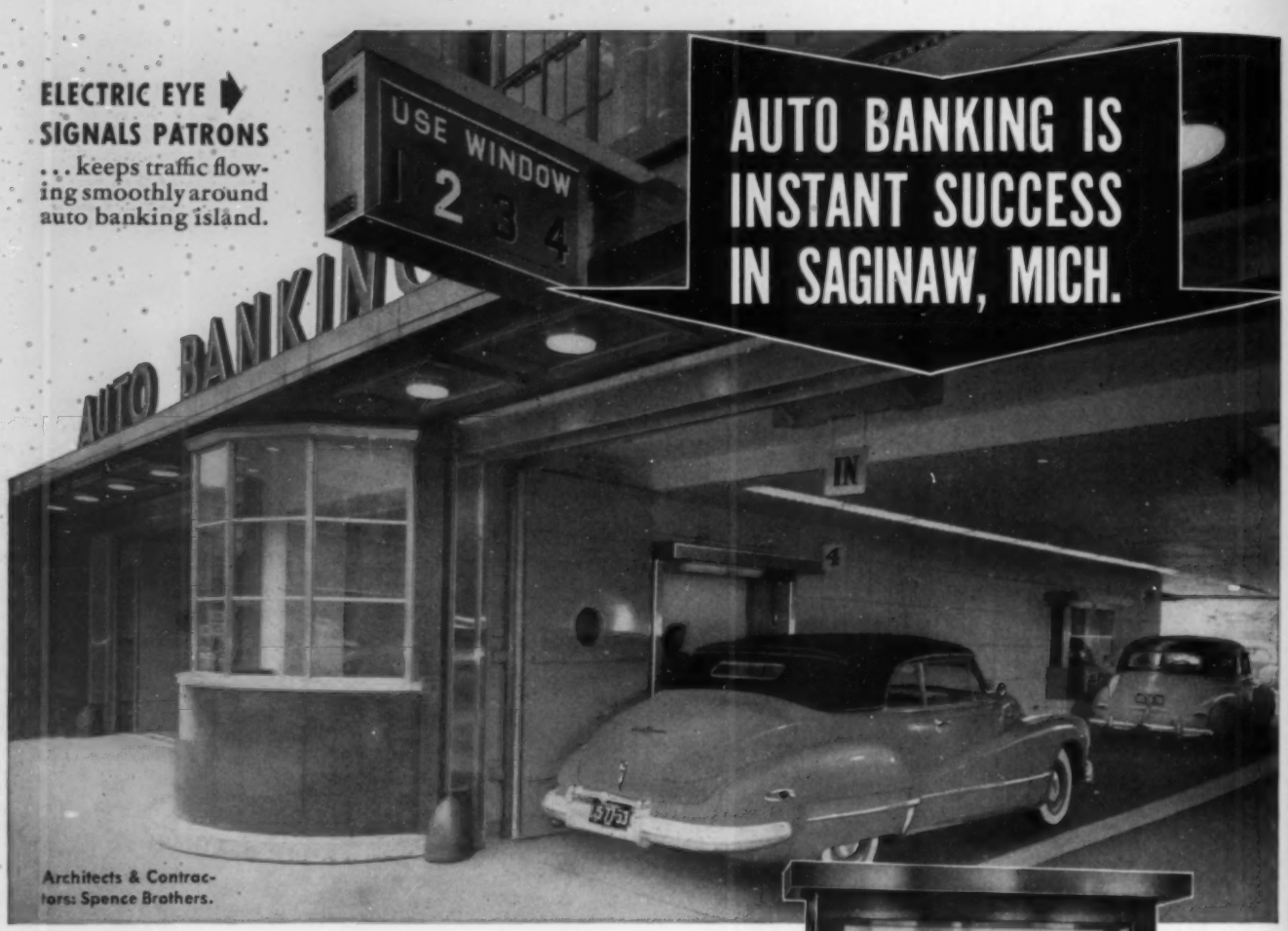

Architects & Contractors: Spence Brothers.

HERE'S how John C. Hay, vice-president of the Michigan National Bank, Saginaw, Mich., describes the reception of this new customer convenience:

"Although our drive-in has been in operation only a little over three weeks, it has exceeded our expectations and the volume of traffic is steadily increasing, requiring our four windows to be kept in operation."

SPECIAL NOTE TO ARCHITECTS: The new Herring-Hall-Marvin Drive-In Depository offers greater freedom of design, with a choice of installation, flush-to-wall—or projected, as shown above. It is a compact, complete unit, quickly and easily installed. You simply designate wall opening and a small floor area in your plans; no other provisions are necessary.

Bullet-resisting glass, stainless steel exterior, two-way speaking system, extra-large package receiver, factory-installed electrical wiring - - are a few of the many other features.

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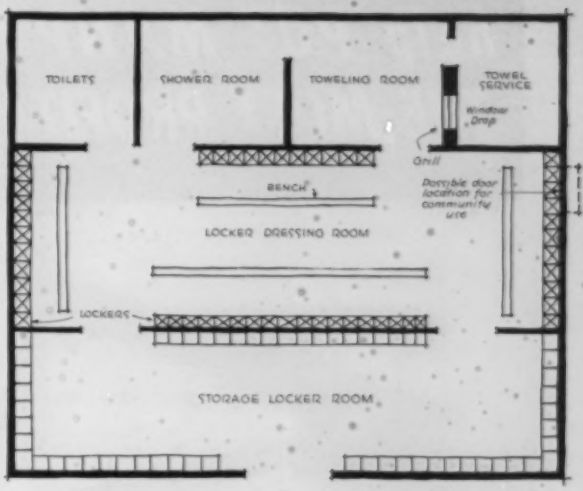
DRESSING-LOCKER ROOM SUITES

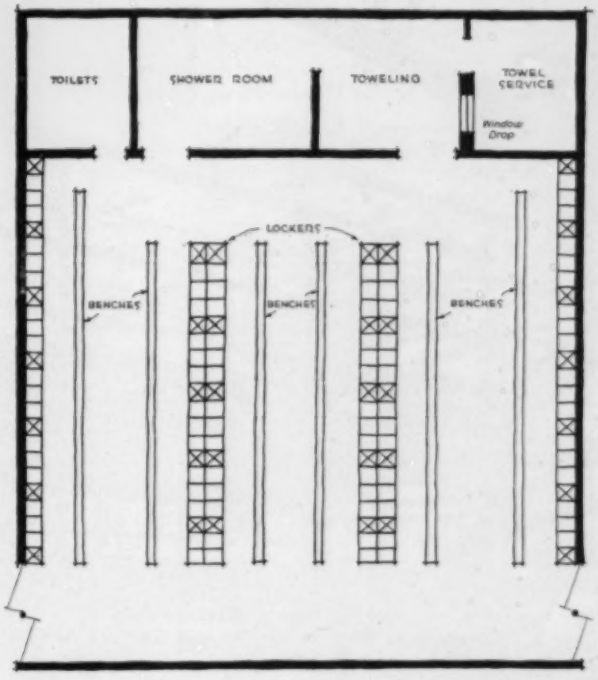
***Based on information from "A Guide for Planning Facilities for Recreation, Physical & Health Education"** **

*Published by The Athletic Institute, Inc., for the National Facilities Conference



1

These plans show three dressing-locker room arrangements, each with its own particular advantages. Dressing lockers are marked with X's. Plan 1: storage lockers are grouped in small space for economy in drying uniforms with forced warm air; some congestion may result from dressing lockers being next to one another. Plan 2: distributing dressing lockers over entire area gives each participant ample dressing space. Plan 3: dressing lockers distributed over entire suite; units can be installed in any number desired and lend themselves to group dressing method for girls. By constructing walls A, B, C and D, putting a grille to ceiling above locker tiers and installing grille sliding doors at E, each unit becomes a complete dressing room for community use. Walls A, B, C and D can be omitted and gates F added to get same use and permit towel service and toilet units to be installed at points A and D



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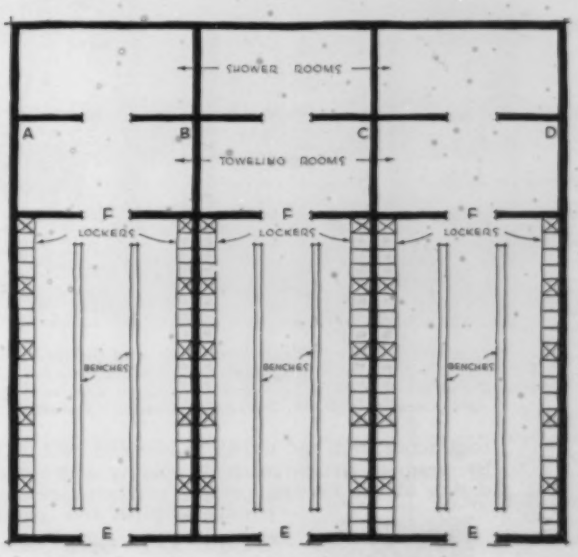


3

DESIGN NOTES

Dressing-Locker Room. An average of 14 sq. ft. per pupil in the designed peak load should be provided exclusive of the locker space so there will be adequate dressing area. Check list: sufficient mirrors, built-in drinking fountain and cuspidor in boys' dressing room, tack board.

Storage Lockers. Each pupil enrolled should have a storage locker, with an additional 10 per cent to allow for expansion. Recommended sizes, in order of preference are: 7½ by 12 by 24 in., 6 by 12 by 36 in., 7½ by 12 by 8 in. These were selected as being the minimum size lockers to store ordinary gym costumes and allow free hanging for ventilation.

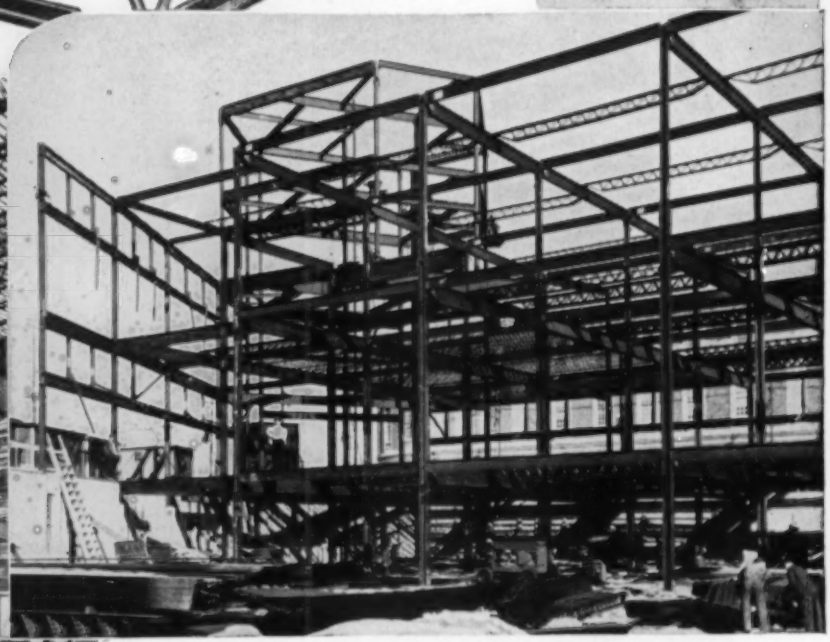
Dressing Lockers. Lockers large enough to accommodate street clothes should be provided. The number should equal the peak load plus 10 per cent. Lockers 12 by 12 by 72 in. are recommended for secondary schools and 12 by 12 by 54 in. or 12 by 12 by 48 in. for elementary schools.

Shower Room. In the group or gang type shower, the girls should have a number of shower heads equal to 40 per cent of the designed peak load; for boys 30 per cent.

Shower heads should be at least 4 ft. apart, of a non-clogging type; height of spray should be adjustable by use of a lock. If stationary heads are installed, they should be placed

(*Continued on page 151*)

Truscon "O-T" Open Truss Steel Joists help PUT MANPOWER TO THE MOST PROFITABLE USE!



Truscon "O-T" Open Truss Steel Joists used for speedy, safe construction in Mercantile Building, Grandfield Development Company, Detroit, Michigan. Charles N. Agree, Architect. O. W. Burke Co., General Contractor.

The light weight of Truscon Open Truss Steel Joists assures easy handling and speedy erection schedules with a small crew of men and no heavy hoisting equipment. Yet, these joists are extremely strong and rigid. They are ideal for floor and roof requirements in all types of building construction, and are designed with a high factor of safety that will meet every exacting specification.

The "O-T" Open Truss Steel Joist is a Warren truss having top and bottom chords of wide tee-shaped members and a plain round continuous web member. The bottom chord is continuous from end to end of joist and bent up at the ends to form the bearings. These steel joists are fabricated by means of electric machine welding under pressure, making positive connections at all joints. The underslung design of the bearing permits maximum head-room under the supporting beams. The open web allows the passage of pipes and conduits in any direction.

Truscon "O-T" Open Truss Steel Joists are very simple to install, being completely shop fabricated and reach the job ready for placing. Each joist is marked to correspond with the erection diagram, thus greatly simplifying and speeding construction work.

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(*Continued from page 149*)

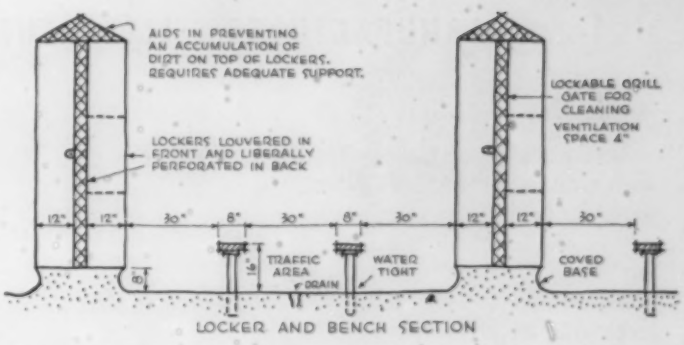
so that the top of the spray will be shoulder height (usually 4½ to 5 ft.).

One to three individual shower booths, 3 by 3½ ft., should be provided additionally for girls.

For boys, if walk-way or walk-around shower system is desired, the number of shower heads in the shower room can be reduced by one-third. In the walk-way, spray outlets attached to the water pipe must be focused to provide coverage from shoulder height to feet. There must be a continuous spray the length of the walk-way arranged so that there will be warm, tepid and cool water as one progresses along the walk-way. The walk-way should be arranged in U shape with a total length at least 35 ft. and from 3 to 4 ft. in width. An entrance from the group shower soaping space and egress to the toweling room and swimming pool should be provided.

Both individual and master control should be provided for all groups or gang showers. The booth showers should have individual control; the walk-way only master control.

Toweling Room. The toweling room should have the same total area as the shower room and be immediately accessible to both showers and dressing room.


AIDS IN PREVENTING AN ACCUMULATION OF DIRT ON TOP OF LOCKERS. REQUIRES ADEQUATE SUPPORT.
LOCKERS LOUVERED IN FRONT AND LIBERALLY PERFORATED IN BACK
LOCKABLE GRILL GATE FOR CLEANING
VENTILATION SPACE 4"
12" 12" 30" 8" 30" 8" 30" 12" 12" 30"
TRAFFIC AREA
DRAIN
WATER TIGHT
COVED BASE
LOCKER AND BENCH SECTION

Suggested locker and bench installation. *When locker height is kept down to 54 in., entire room can be supervised. Sloping locker top cannot be used, but 4 in. ventilating space should be louvered*

A ledge 18 in. high and 8 in. wide coved at wall and base, with bull nose edge, as foot drying aid is desirable.

If towel distribution is such that hanging of towels in drying room is necessary, a 1-in., non-corrosive towel bar 4 ft. from the floor and 1 to 1½ in. from the wall is recommended.

A non-shatterable, transparent panel for supervision of toweling between the toweling and dressing room may be desired.

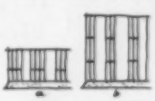
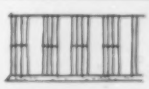
Towel Service and Storage Room. Adjustable shelves in sufficient number to accommodate the load are required. A check-out window should open into or be immediately adjacent to the toweling room. If uniforms are distributed from here, a dutch door or check-out window, with counter, should open into the dressing room.

Toilet Room. Facilities should be provided in proportion to the peak load on the following basis:

Toilets	Girls	1–30	Min. 3
Toilets	Boys	1–50	Min. 2
Urinals	Boys	1–25	Min. 2
Lavatories	Girls and Boys	1–20	Min. 3

TYPICAL COMBINED STORAGE-DRESSING LOCKER ARRANGEMENTS

Area of the Dressing-Locker Room Suite required for different types storage and dressing lockers in a typical unit for 240 girls or 240 boys. Proportionate adjustments to be made for varying school enrollments.

Class Periods Per Day	Size of lockers and Battery Arrangement	Typical Installation	Overall height with base	Number students per day	Peak load per period	Area Required, sq. ft.	Recommendation *
six	6—storage 7½ x 12 x 24″ 1—dressing 12 x 12 x 48″ or 6—storage 7½ x 12 x 24″ 1—dressing 12 x 12 x 72″		54″ or 80″	240	40	114.80 or 90.0	1 a. grades 1–12 b. grades 9–12
six	6—storage 6 x 12 x 36″ 1—dressing 12 x 12 x 72″		80″	240	40	100.0	3 grades 10–12 only
six	6—storage 7½ x 12 x 18″ 1—dressing 12 x 12 x 54″		62″	240	40	90.0	2 grades 1–12
eight	8—storage 7½ x 12 x 18″ 1—dressing 12 x 12 x 72″		80″	240	30	67.50	2 grades 9–12
eight	8—storage 7½ x 12 x 24″ 1—dressing 12 x 12 x 48″		54″	240	30	105.0	1 grades 1–12

* *Numbered in order of Preference*

MANUFACTURERS' LITERATURE

Architectural Metals

Architectural Metal Handbook. A thorough guide and handbook covering the whole field of architectural ornamental metals. The handbook was prepared by the National Ass'n of Ornamental Metal Manufacturers to aid architects in the preparation of plans and specifications of architectural metal, to establish uniform standards of construction and to define terms commonly used in the industry. The bulk of the book is devoted to construction details.

Other chapters take up: composition and characteristics of architectural metals; methods of fabrication; metal products to be specified separately from architectural metal; structural steel as related to architectural metal; paints and finishes; suggestions for preparation of specifications; and data on sizes, gauges and weights of metals. The book is being distributed free to architects. 319 pp., illus. National Ass'n of Ornamental Metal Manufacturers, O. J. Condon, Sec'y, 209 Cedar Ave., Takoma Park, Washington 12, D. C.

Air Conditioning

Agitair Square and Rectangular Air Diffusers, Types R-RV-RTC. Contains data to simplify the selection and sizing of three types of Agitair square and rectangular diffusers. Typical applications and available patterns are shown. Detail drawings are included. 6 pp., illus. Air Devices, Inc., 17 E. 42nd St., New York 17, N. Y.

Window Screens

Pella Rolscreen Details. Portfolio of specifications and construction details for application of roll-type screens to wood and metal windows of all kinds. When not in use the screen is rolled up into a steel housing at the top of the window. Details are also given for light-proof shades. 11 pp., illus. The Rolscreen Co., Pella, Iowa.

Public Address Systems

Altec Speech and Music Reinforcement (P. A.) Systems. Shows and describes components for public address systems to serve spaces ranging from a 250 seat church to a 90,000 seat stadium. Suggested combinations of amplifier components for small, medium and large auditoriums are included. 8 pp., illus. Altec Lansing Corp., 161 6th Ave., New York 13 or 1161 N. Vine St., Hollywood 38, Calif.

Soap Dispensers

Soap and Soap Equipment. Newly-designed equipment for dispensing liquid soaps is described and illustrated by photos and schematic diagrams. The booklet also discusses types of liquid soaps available. 16 pp., illus. West Disinfecting Co., 42–16 West St., Long Island City 1, N. Y.

Concrete Forms

Uni-Forms, the Concrete Forming System. Describes a system of concrete forms made of plywood held by steel frames and protective strips. Shows how the forms are used for walls, corners, pilasters, battered walls, slabs, columns and tunnels. Special features for quick assembly and stripping and for accurate alignment are considered. Many on-the-job photos are included. 32 pp., illus., Universal Form Clamp Co., Chicago 51, Ill.

Blaw-Knox Steel Street Forms. Provides information to aid in the selection and use of steel paving forms for the construction of concrete curbs, gutters or sidewalks. Sixteen different types of standardized steel forms are described and illustrated. One section of the folder shows how to set and strip the forms. 28 pp., illus. Blaw-Knox Div., Blaw-Knox Co., P. O. Box 2, Blaw-Knox, Pa.*

Baseboard Heaters

Comfort Heating with Convect-O-Base. Shows how a line of aluminum radiant baseboards is installed. Typical floor plan illustrates how baseboard radiation is distributed and photos cover the step-by-step installation procedure. 8 pp., illus. Minimite Co., 4518 W. Lexington St., Chicago 24, Ill.

Structural Aluminum

Aluminum Structural Design. A technical handbook prepared to enable those familiar with mechanics of materials to design an original structure of aluminum, or to convert an existing structural design from some other material to aluminum. The handbook describes aluminum alloys and their mechanical properties, takes up structural design considerations (various loads and stresses), and covers fabricating considerations such as riveting, bolting and welding. The handbook is liberally illustrated and contains numerous tables on physical, mechanical and chemical properties. It is being sent free of charge to architects, engineers and designers requesting it on their company letterhead. 124 pp., illus. Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.*

Lighting

Lighting by Holdenline. Describes a line of fluorescent fixtures including plastic-louvered luminaires, semi-industrial and industrial fixtures and lighting accessories. Construction features and dimensions are given. 8 pp., illus. Holdenline Co., 2300 Scranton Rd., Cleveland 13, Ohio.

Miller Series-Louver Slimline Luminaires. Folder on a new louvered fixture for use with the 96-in. Slimline fluorescent lamp in commercial and industrial interiors. Gives dimensional details and illumination performance in various size areas. 8 pp., illus. The Miller Co., Illuminating Div., Meriden, Conn.

Wiring Equipment

The Plugmold Story. A non-technical, descriptive booklet on use of Plugmold, a metal molding with closely spaced electrical outlets, in the home. Pictures applications in the rooms of a typical house. 12 pp., illus. The Wiremold Co., Hartford 10, Conn.

P & S Wiring Devices (Catalog No. 49). Extensive catalog on wall plates, switches, convenience outlets, lampholders, fluorescent lampholders and starters, etc. A new item shown is a wall plate in which outlets, switches and night or warning lights can be combined as desired. 64 pp., illus. Pass & Seymour, Inc., Syracuse 9, N. Y.

LVD Flex-A-Power. Presents features and advantages of a prefabricated busway used principally as feeder lines for transfer of heavy current or as main feeders for power and light. Actual installations are shown in which close voltage regulation was required. Outlines cost-cutting features. 4 pp., illus. The Trumbell Electric Mfg. Co., Plainville, Conn.*

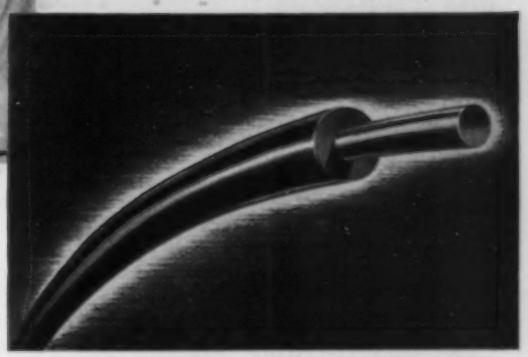
Service Entrance Equipment. Folder on residential fuse puller switches to be used

(*Continued on page 188*)

* Other product information in Sweet's File, 1949

For rewiring that pays its way

Flamenol Building Wire



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For rewiring that really pays its way in installation speed and savings on space—you just can't beat General Electric Flamenol® Type TW building wires.

The thermoplastic insulation on G-E Flamenol wires cuts clean, strips off easily. For quick installation, Flamenol wires are wax-coated, to slide easily through raceways. For speed on the job, Flamenol wires are light in weight—easy to handle.

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Look to General Electric Flamenol wires for rewiring that really pays its way on the job. For more information, write to Section W34-75, Construction Materials Department, General Electric Company, Bridgeport 2, Connecticut.

Pays in the years to come

Because this thermoplastic was developed expressly as an electrical insulating material, G-E Flamenol building wires are made to last. Flamenol insulation will keep its smooth surface and maintain its high dielectric strength indefinitely.

These wires also resist the effects of air, acids, alkalies, water, grease, and oil—will not support combustion. A variety of colors makes circuit tracing easy.

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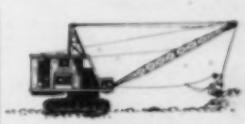

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WRIGHTEX is the *only* soft rubber tile with a permanent, naturally glossy surface. Installations made in heavy traffic areas over 27 years ago still look as good as new and when measured for wear, show a potential lifetime of over 100 years.

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WRIGHT RUBBER TILE

FLOORS OF DISTINCTION

NEWS FROM CANADA

(*Continued from page 10*)

facturing had 365 committees, involving 160,470 workers; mining, 41 committees, involving 25,066 workers; communications, 41 committees, involving 10,537 workers; service, 22 committees, involving 12,494 workers; and transportation, 121 committees, involving 56,606 workers.

There were only 2 committees in the construction industry, but 8840 workers were involved.

Ottawa May Get Face Lifted

Most of Ottawa's defects will be eliminated if the federal government acts on recommendations contained in a report recently made by the National Capital Planning Committee.

Unlike Washington, planned in advance and wrested from the wilderness, Ottawa was already in existence when Queen Victoria chose it to be the capital of Canada. Then a small lumber town and military outpost, its development betrays little awareness of the beckonings of destiny. The grandeur of the Parliament Buildings and the beauty of the driveway circling the city fade, but fail to erase a visitor's impressions of cramped streets, mean architecture and strange industrial smells.

The N.C.P.C. report is the result

(*Continued on page 156*)

Panda Photo

University Theater, Toronto, Ontario, designed by Eric W. Hounsom, Architect, A. G. Facey, associate. Architect was also interior decorator, designing sign and marquise, special electrical fixtures and most of the furniture

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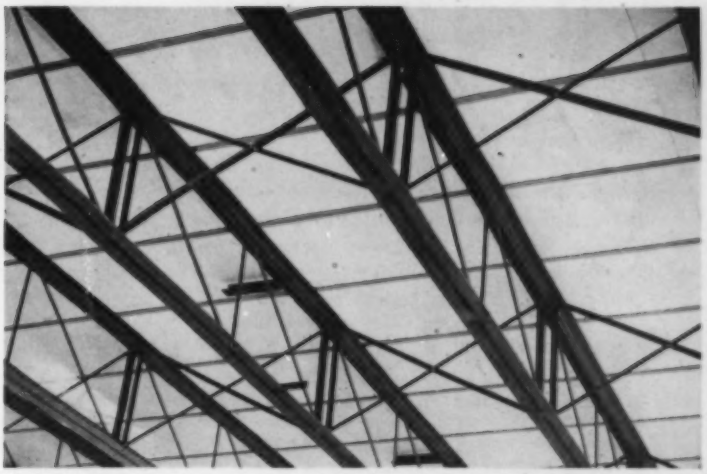

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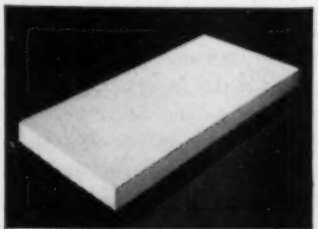

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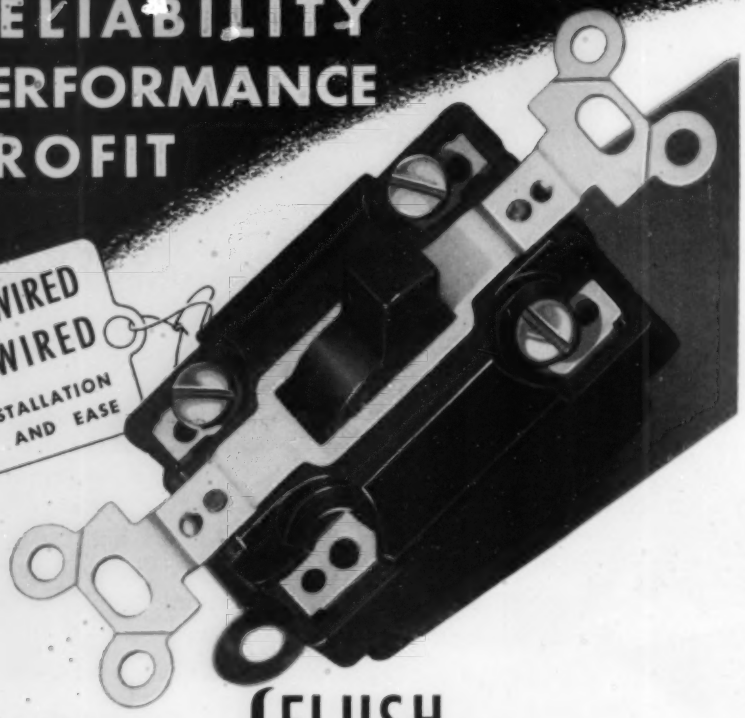

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These new back- or top-wired flush tumbler switches give you plenty of performance, profit and reliability. They install quickly and positively. There's no need to bend or loop wire — it goes straight into the unit from the back and is held firmly and permanently by a wire clamp. They're safer, too — there are no exposed wire ends. And they're ideal for use with heavier (10 to 14) wire. Top-wiring with conventional binding screws is optional.

FEATURES? HERE ARE A FEW

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THE ARROW-HART & HEGEMAN ELECTRIC COMPANY
HARTFORD, CONNECTICUT

NEWS FROM CANADA

(*Continued from page 154*)

Architect's office building now under construction for designer-owner John B. Parkin Associates, Toronto, Ontario

of three years work by Jacques Greber, distinguished French town planner, and a staff of Canadian experts. Its proposals for Ottawa, for which it forecasts a population of 500,000 within the next 50 years, take into account the preservation of worthwhile existing features. The Rideau Canal, picturesquely bisecting the city, the Parliament Buildings and various other structures are not to be touched. At the same time, adoption of an extensive program of public works is advocated to enable Ottawa to take its rightful place among the world's capitals.

One of the most notable of these improvements is the removal of the railway lines that now divide the city into tiny segments. On the former rights of way a system of boldly designed thoroughfares and boulevards will be created. Of course, moving the railways constitutes a major problem since the factories they serve must go with them. A start has been made in this direction by the acquisition of 2,000 acres of land for new industrial sites.

Another change for the better will result from redeveloping Ottawa's downtown business area. Here is to be built a large auditorium, capable of seating 10,000 persons, which will be surrounded by a hotel, restaurant, and parking space. Other proposed public buildings are a national institute of the arts, to house the National Gallery of Canada and a national theater, a national library and a new home for the National Film Board. Construction of zoological and botanical gardens, and a sports center big enough to accommodate the Olympic games is advocated as well.

The national capital district will

(*Continued on page 158*)

for appearance...

Simple, unobtrusive design blends with any architectural treatment.

for performance

Adjustment features insure positive control of air movement.

Kno-Draft

. . . adjustable air diffusers help solve problems of both form and function.

FREE HANDBOOK—Send for FREE copy of new handbook on air diffusion. Complete information on Kno-Draft Adjustable Diffusers and all necessary engineering data to help you create "custom-made" air patterns. Just fill in and mail the coupon.

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Please send my FREE copy of the new Kno-Draft Handbook on Adjustable Diffusers.

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Company.....

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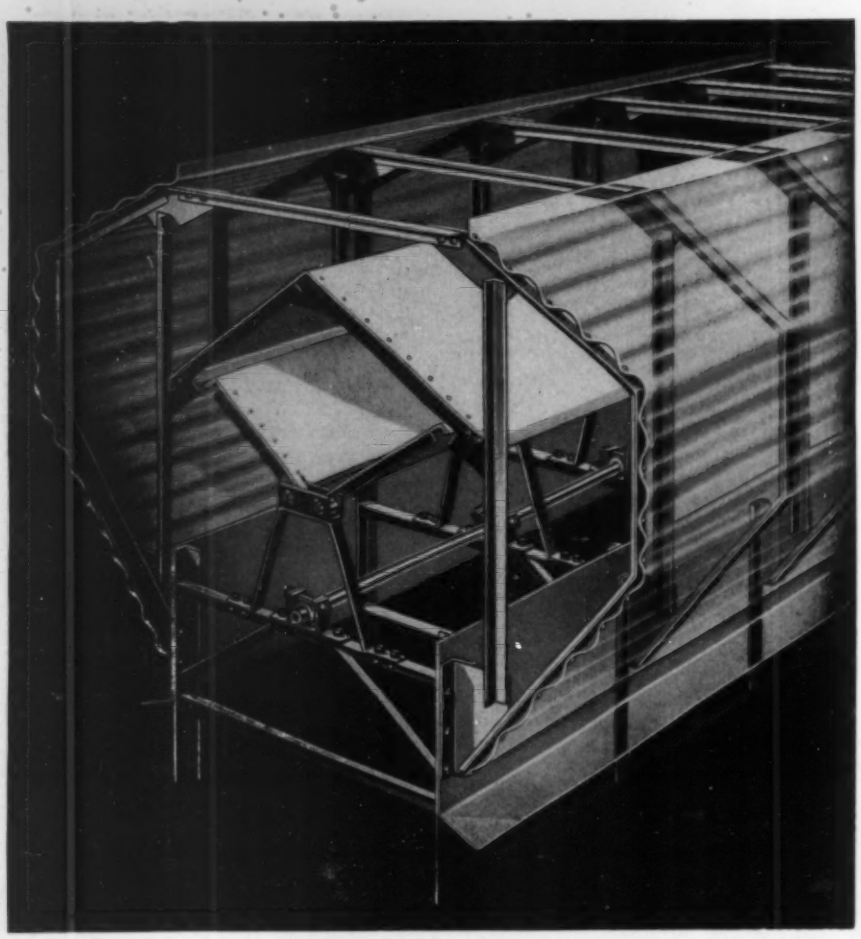
City..... Zone..... State.....

BEAT SUMMER SLUMP WITH BURT VENTILATORS



Insufficient ventilation may be responsible for a good share of your clients' hot weather troubles. Often, a sharp drop in production and a rise in rejects, minor accidents and absenteeism may be traced directly to improper plant ventilation. The remedy is simple—a properly engineered and installed Burt Ventilating System. Burt engineers will help you with layouts and specifications. From the complete Burt line of gravity, fan and continuous ridge ventilators, they can recommend the sizes and types that will perform best for you. Special units, if required, can be produced in Burt's highly efficient fabricating plant quickly and economically. Half a century of ventilating experience assures you a properly engineered and efficient ventilating system when Burt does the job. See Sweet's or write for catalog and data sheets on the Burt line—NOW.

WRITE FOR CATALOGS AND DATA SHEETS

The BURT MFG. Co.

48 E. South Street · Akron 11, Ohio, U.S.A.

VENTILATORS • LOUVERS • OIL FILTERS • SHEET METAL SPECIALTIES

NEWS FROM CANADA

(*Continued from page 156*)

consist of an area of 900 square miles. Surrounding the city will be a green belt comprising farm, market gardening and wild land, which will serve to limit future growth and prevent ribbon development. The remainder of the district will be extensively developed with special emphasis laid on hunting, fishing and resort facilities. A comprehensive network of arterial highways, roads and scenic drives is planned.

The proposals put forward by the National Capital Planning Committee affect not only Ottawa, but nearly 30 other municipalities and 2 provinces — Ontario and Quebec — as well. Co-operation at all levels will be essential for the successful realization of the plan. Contrary to the practice in many other countries, the federal government has no administrative authority over Canada's capital and the surrounding district.

Completions and Starts Soar

The first quarter of 1949 saw 17,800 dwelling units completed, according to the latest release from the Dominion Bureau of Statistics. This represents an increase of 54 per cent over the same period a year ago. Starts for the first quarter totalled 8,400 units, an increase of 26 per cent.

The Bureau attributes the larger number of completions to the "unusually higher carry-over at the beginning of 1949." But "in spite of the greatly increased completions, the amount of work in progress remains high."

Socialized Housing Blasted

Members of the Toronto Property Owners' Association were urged to organize to protect private enterprise housing from "inroads of the welfare state," at a recent meeting. The suggestion came from Herbert U. Nelson, executive vice-president of the National Association of Real Estate Boards of the U. S.

"An organized rental housing industry can get the facts about rental property and property ownership to the public, past hollow political promises and economic sleight-of-hand," Mr. Nelson asserted. "Only through such action are we likely to avoid the permanent political capture of the rental housing industry that has been accomplished in France and England."

(*News continued on page 160*)

Something *Really* NEW in lightingware

CORNING "FOTA-LITE"

The glass with sealed-in louvers

Now you can get "egg crate" fluorescent lighting effect *without the egg crate!* Corning "Fota-Lite" is a new glass in which vertical louvers are photographically transferred to the full thickness of the glass.

EASY TO CLEAN. "Fota-Lite" presents a smooth surface which you can wipe clean quickly—something that is impossible with ordinary exposed louvers. Since you can completely enclose the fixture, both tubes and reflectors also remain clean. Thus, you never lose original efficiency through the accumulation of grime and dust.

HIGH EFFICIENCY. Brightness at high angles is low. Yet, the transparent area is comparable to the finest crystal. Light directed vertically is almost unrestricted but a slight surface diffusion obscures tubes and reflectors. The 45° cut off is obtained within the thickness of the glass (1/8") instead of bulky and costly louvering materials.

NO COLOR CHANGE. The opalescent louvers are non-selective in color transmission and as they are sealed within the glass surface, discoloration is impossible. This is important in maintaining original color values.

CORNING means research in GLASS

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Please send Bulletin LS-19, describing Fota-Lite.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

NEWS FROM CANADA (*Continued from page 158*)

Elementary school, Valois, Quebec. Barott, Marshall, Montgomery & Merrett, Architects

STONE & THOMAS, THE PEOPLE'S STORE, CHARLESTON, W. VA.
Designed by: George Frost, Amos Parrish & Co., Inc.

THE PEOPLE'S CHOICE

Bergen Elected Again!

Elected again! This time by the People's Store, who now proudly point to the most modern store in the South.

A completely new establishment was erected for them at Charleston, W. Va. The photo above gives but the briefest glimpse of the finest equipment which is an integral part of the entire store. For instance, display counters are illumined by cold cathode lighting with concealed wireways.

On every hand, one sees evidence of the masterful incorporation of the latest merchandising ideas . . . all translated into physical reality. Enduring reality, in fact, because Bergen's aged-in-the-wood craftsmanship was involved from designer's plans through installation.

North . . . East . . . South . . . West! Bergen Cabinet is elected many times a year . . . to do jobs that give perfect service for decades!

Write for our Portfolio of "Jobs Well Done". It's worth seeing.

Bergen-sure the success of your modernization program with

BERGEN CABINET

Architectural woodwork that makes the designer's plan an enduring reality

1552-56 BERGEN STREET, BROOKLYN, N. Y. • Phone: PResident 2-3121

April Contracts Dip Slightly

Building contracts for April totalled $76.8 million, according to Maclean Building Reports. This is $3.9 million less than the amount for the same month last year. Ontario was the culprit. Awards there were off nearly 50 per cent in all classifications. Other provinces showed gains, with Quebec and the Maritimes leading the parade.

The drop is significant because April, May and June are key months in determining whether or not 1948's record total of $954 million will be surpassed. So far, there's no cause for pessimism. Contracts for the first four months of 1949 amounted to $280.5 million, or $71.2 million more than the total for the same period last year. Residential building continued to head the list.

Builders Want Easier Credit

Charges that loan appraisals under the National Housing Act are too low to meet the needs of prospective homeowners were levied at the recent annual meeting of the National House Builders' Association in Winnipeg.

The builders, who have been becoming increasingly restive about this matter, prepared a strongly worded brief for submission to Reconstruction Minister R. H. Winters. It calls for boosting "appraised lending values" to parity with 1949 construction costs, extension of the mortgage amortization period to 30 years, reduction of down payments to 10 per cent of current prices, and elimination of regional differences in making N.H.A. appraisals.

George Prudham of Edmonton, reelected president of the Association, pointed out that the reluctance of Central Mortgage & Housing Corporation (which administers the Act) to recognize today's costs is creating an unsupportable demand for rental housing. In his opinion, communities are being forced to enter Dominion-municipal agreements to build subsidized projects. The carrying charges of these projects are certain to cost the public more than any loss theoretically risked in raising appraisals.

Raps Government in Housing

"The only justification for the government taking a dollar from the citizen is that it be spent to the greater common good than if spent by the citizen himself," President T. D'Arcy Leonard told the Dominion Mortgage & Investment Association in his annual report. The

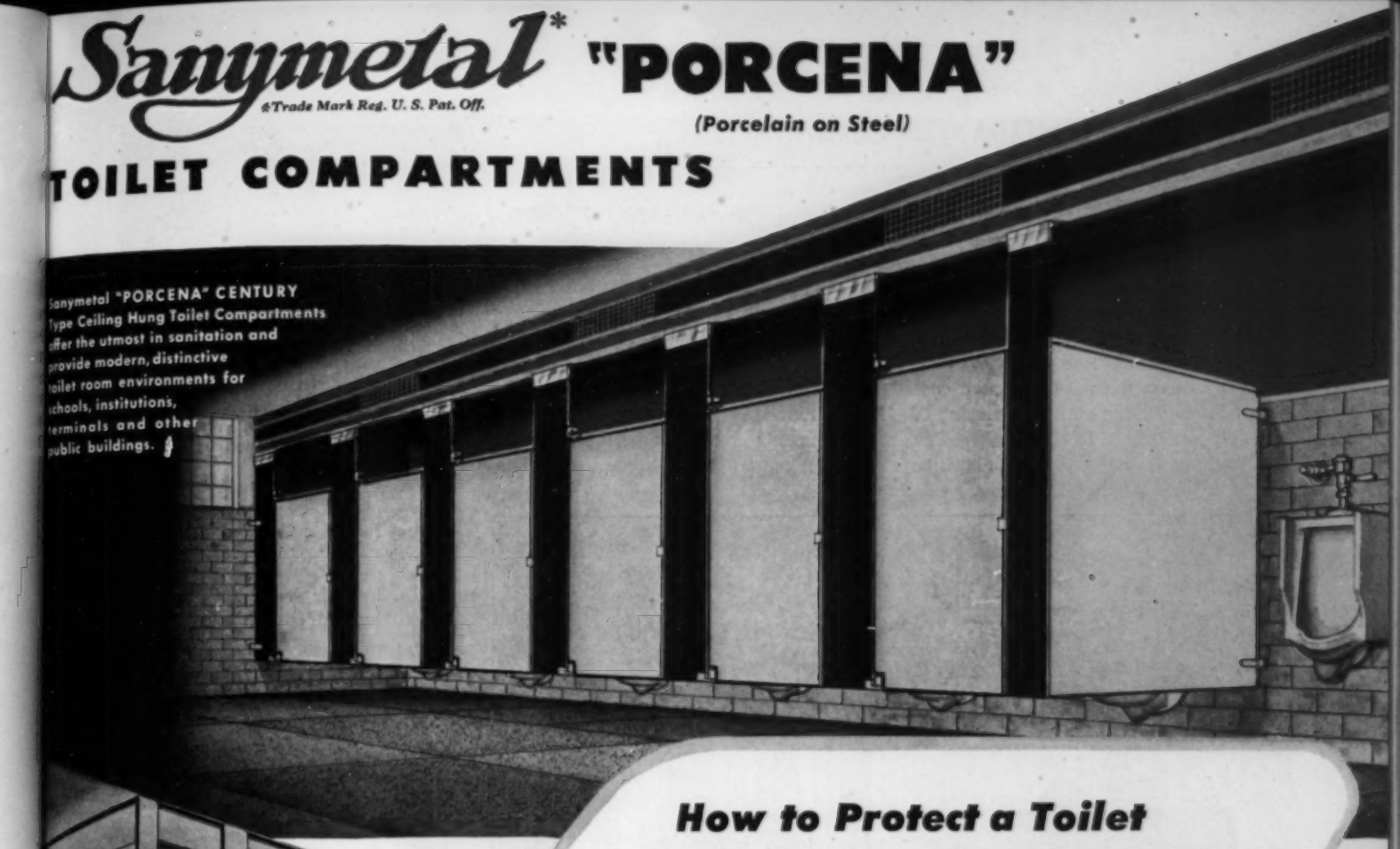
(*Continued on page 162*)

Sanymetal* "PORCENA"

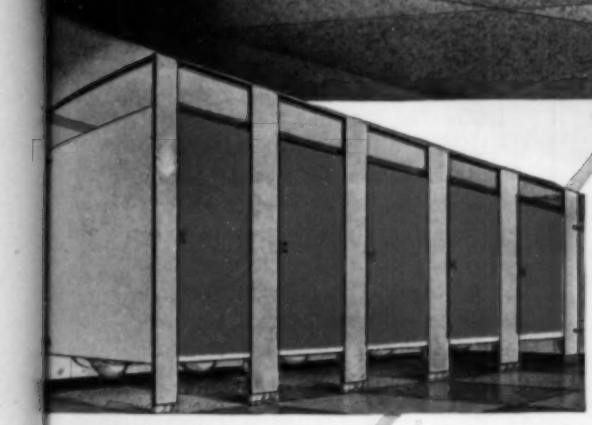
*Trade Mark Reg. U. S. Pat. Off.

(Porcelain on Steel)

TOILET COMPARTMENTS



Sanymetal "PORCENA" CENTURY Type Ceiling Hung Toilet Compartments offer the utmost in sanitation and provide modern, distinctive toilet room environments for schools, institutions, terminals and other public buildings.



Sanymetal "PORCENA" ACADEMY Type Toilet Compartments are suitable for conservative but modern toilet room environments.

How to Protect a Toilet Room Environment Against Premature Obsolescence

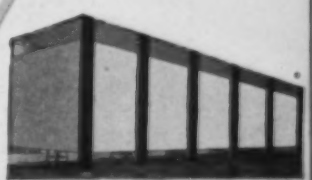
● There is one environment you can protect against premature obsolescence—the toilet room environment.

Toilet room compartments usually dominate a toilet room, influencing the toilet room environment. Sanymetal "PORCENA" (Porcelain on Steel) Toilet Compartments provide a generous measure of protection because of these features. Sanymetal "PORCENA" (Porcelain on Steel) Toilet Compartments always look new, do not absorb odors, are moisture and rust proof and resist the corrosion of ordinary acids. The glistening, glass-hard, "PORCENA" (Porcelain on Steel) finish can be wiped clean as easily as a porcelain table top, and greatly reduces sanitation and maintenance costs.

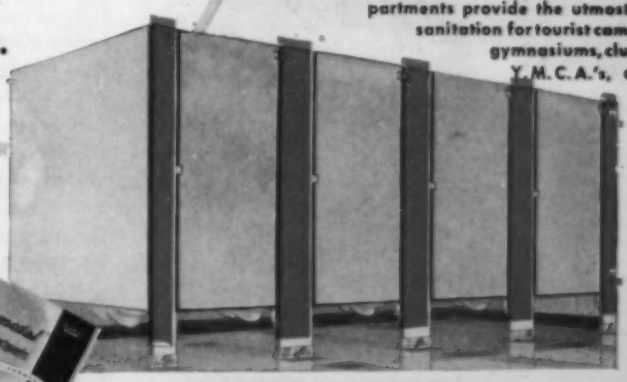
Sanymetal "PORCENA" (Porcelain on Steel) Toilet Compartments combine the results of over 35 years of specialized skill and experience in making over 100,000 toilet room installations. Ask the Sanymetal Representative in your vicinity (see "Partitions" in your phone book for local representative) for helpful suggestions about planning suitable toilet room environments . . . Refer to Sanymetal Catalog 21b/6 in Sweet's Architectural File for 1949.

THE SANYMETAL PRODUCTS CO., INC.

1689 URBANA ROAD • CLEVELAND 12, OHIO



Sanymetal "PORCENA" ACADEMY Type Shower Stalls and Dressing Room Compartments provide the utmost in sanitation for tourist camps, gymnasiums, clubs, Y.M.C.A.'s, etc.



Sanymetal*

*Trade Mark Reg. U. S. Pat. Off.

"PORCENA" (Porcelain on Steel)

TOILET COMPARTMENTS, SHOWER STALLS AND DRESSING ROOMS

Write for Sanymetal Catalog 86 which illustrates modern toilet room environments suitable for all types of buildings. Several attractive designs in a wide range of colors available. This catalog is also contained in Sweet's 21b/6 Architectural File for 1949.

Sanymetal "PORCENA" NORMANDIE Type Toilet Compartments endow a toilet room environment with dignity and good taste.

Association's membership is comprised of Canadian life insurance, trust and loan companies.

Examination of expenditures by governments, Mr. Leonard said, reveals that the uses to which much money is put violate the required standard. He felt this was a matter of particular concern in connection with the housing of the people.

"In those parts of this field, such as slum clearance, which properly belong to government, not a great deal is being done. On the other hand, we find that a good many taxpayers' dollars are being devoted to financing and construction of housing that could be done without government participation.

"At the present time there are ample funds available from sources other than governments for all normal economic housing construction," he declared.

New plant for Majestic Leather Goods, Hull, Quebec, designed by J. S. LeFort et ses Associes

Housing Projects Get Bigger

The most marked difference between Canadian prewar and postwar housing schemes is the increase in their size. Of course, this is chiefly due to the entry of Central Mortgage & Housing Corporation into the shelter field. Those of its activities which contribute to large-scale construction operations are two in number: its building of rental housing for veterans and its rental insurance program.

Under the veterans' rental scheme, the municipality requiring housing supplies the land and services and Central Mortgage finances the cost of construction. The municipality agrees to accept a small annual payment per dwelling in lieu of taxes. The insurance program guarantees builders of rental housing sufficient income to look after taxes, debt service, operating expenses, repairs, renewals and replacements. A nominal premium is charged.

A summary of the larger housing projects launched under these two schemes, and now underway across Canada, follows:

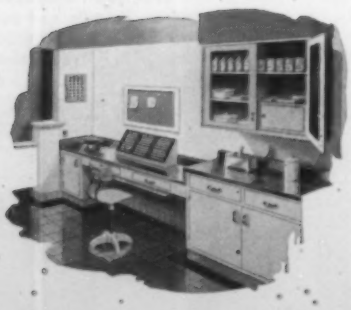
RENTAL HOUSING

Project	No. Units
Calgary, Alta.	275
Edmonton, Alta.	250
Regina, Sask.	300
St. Boniface, Man.	200
St. Laurent, Que.	768
Vancouver, B. C. "Fraserview"	1,200
" " "Renfrew Heights"	586
Windsor, Ont.	500
Winnipeg, Man.	300

RENTAL INSURANCE

Project	No. Units
St. Laurent, Que.	1,100
Toronto, Ont.	183

Both the St. Laurent and Toronto rental insurance projects are completely planned communities with shopping centers and other facilities. Land coverage is low, and buildings are both one and two bedroom apartments, and row houses.



● Kewaunee Hospital Casework, Cabinets and Laboratory Furniture are scientifically designed to give you top efficiency and time-saving convenience. Built completely in our plants, Kewaunee's high standards, plus production-line manufacturing, assure custom quality at lower cost.

Kewaunee Metal Furniture is Bonderized for protection against rusting and chipping. Hospital Laboratory table tops and working surfaces are of KemROCK for resistance to acids, alkalis, solvents, abrasion and ordinary physical shocks.

You are invited to consult Kewaunee's Hospital Engineering and Planning Service without cost or obligation.

Representatives in Principal Cities

C. G. CAMPBELL, President

KEWAUNEE MFG. CO., 5046 S. Center St., Adrian, Mich.

The 25-year Fenestra Holorib ceiling and roof of the P. G. Vincent Cigar Co., Cleveland. Architects—Cavanaugh & Baer

AFTER 25 YEARS— *As Good as New!*

Back in 1924, a couple of months before Calvin Coolidge was elected President, the sturdy roof and ceiling you see above was installed for the P. G. Vincent Cigar Company of Cleveland.

Now—25-years-of-wear later, that Fenestra* Holorib roof is *still as good as new!*

In fact, the present occupants of the building say they haven't even noticed the ceiling in the 12 years they've been there. Why should they? It's never given them a minute's trouble. That's something to remember—if you want permanent protection for your buildings.

WHAT HOLORIB STEEL DECK IS:

Strong, lightweight, smooth-surfaced roof sheathing in 18 or 20-gauge sheets 18″ wide and as long as required for multiple purlin spacings up to 24′. Each sheet is self-reinforced by three 1½″ deep ribs running lengthwise, spaced on 6″ centers. The pyramidal rib shape provides a broad base for bearing and welding, and narrow rib openings minimize asphalt loss during mopping of insulation. Rib shape—plus the exclusive telescoping end-lap and interlocking side-lap features—is the key to the tremendous strength and rigidity of Holorib installations...the key to the 25-year line of successful Holorib installations.

WHAT HOLORIB DOES:

Holorib Roof Deck, welded directly to purlins, forms a flat roof easily covered with insulation and waterproof roofing. Economical and easy to erect, Holorib gives you an attractive, noncombustible, long-wearing ceiling.

Specify Holorib for a roof deck and ceiling that easily passes the 25-year test. Also check on Fenestra D Panels for floors, insulated C Panels for walls. You'll be glad you did. For further information, see Sweet's Architectural File, Section 3c/3. Better yet, call or mail the coupon.

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federal buildings in Honolulu and the Law Quadrangle of the University of Michigan.

From 1909–13 he was consulting architect to the Treasury Department and since 1907 to the Board of Water Supply of New York City. He went to Japan in 1937 as a consulting architect.

Mr. Sawyer began his technical education with the study of engineering. He studied architecture at Columbia University and the Ecole des Beaux Arts in Paris and later worked and continued his studies with the firm of McKim, Mead & White.

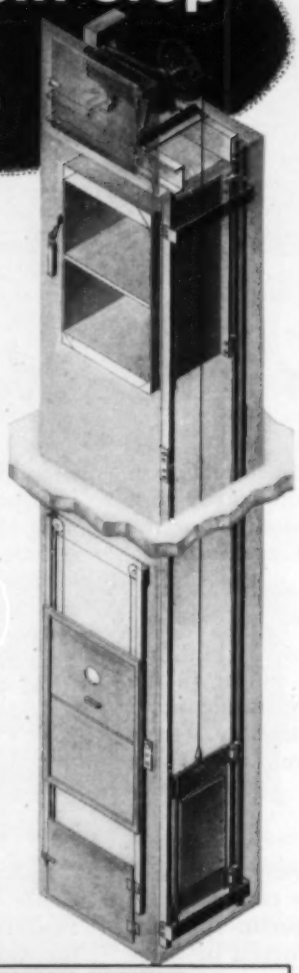
FRANK AYERS WRIGHT

Frank Ayers Wright, A.I.A., and a founder of the Architectural League of New York, died on June 6 in Whippany, N. J., following a long illness. He was 94.

Mr. Wright was the author of "Architectural Perspective for Beginners" which was widely used as a textbook. He studied architecture at Cornell University, graduating in 1879, and was appointed an instructor in architecture while he was still a student. He was the oldest member of the Cornell Club of New York.

Mr. Wright was also widely known as a golfer and from 1910 to 1912 was one of the top-ranking amateurs in the sport. He won the Cornell Club championship 13 times.

Sedgwick Multi-Stop Electric Traction DUMB WAITERS



WHERE THERE ARE THREE OR MORE LANDINGS TO BE SERVED . . . specify Sedgwick Electric Traction Dumb Waiters—confident that your clients will be fully satisfied. Proven performance is attested by thousands of installations, operating successfully from coast-to-coast, contributing convenience, efficiency and economy in hospitals, hotels, restaurants, clubs, libraries, schools, stores and other commercial, institutional and industrial buildings. Available to you—from specification to installation—is Sedgwick's 55-year-old experience in planning, engineering, manufacturing and installing of vertical transportation equipment.

Throughout, Sedgwick combines sound, progressive electrical and mechanical engineering to produce a Multi-Stop Dumb Waiter meeting the highest standards of dependable operation, low-cost maintenance and finished appearance.

Machine consists of elevator-type high torque, low starting current motor, with worm gear reduction built as one unit and an adjustable electro-magnetic brake. Gearing operates in a sealed case filled with special lubricant. Control is fully automatic with momentary pressure push buttons at each landing opening, permitting car to be called and dispatched as desired. Each push button station is provided with "open door" and "in use" signal lights to expedite efficient use of equipment. Sedgwick Type "SL" Combination Door Locks and Switches are provided for hoistway doors to prevent opening of any door except that door at which the car is at rest, thus permitting operation of car only when all doors are closed. Other refinements in the control system include reverse phase relay, overload relay and non-interference relay.

In addition to Sedgwick Multi-Stop Electric Traction Dumb Waiters, Sedgwick also builds the Roto-Waiter, designed especially for two-stop service. Both are of all-steel construction. Specify, too, Sedgwick Steel Dumb Waiter Doors for complete satisfaction.

Whatever your vertical transportation problem may be, it is probable that we have case histories on parallel applications in our files. We'll be glad to supply you with such information, prices or any other data you may require.

STANDARD DIMENSIONS						
Capacity in lbs.	200	200	300	300	500	500
Speed in F.P.M.	50	100	50	100	50	100
Car Width	24″	24″	30″	30″	36″	36″
Car Depth	24″	24″	30″	30″	36″	36″
Car Height Inside	36″	36″	36″	36″	48″	48″
Clear Inside Hoistway Width	33″	33″	39″	39″	45″	45″
Clear Inside Hoistway Depth	29″	29″	35″	35″	41″	41″

Sedgwick MACHINE WORKS
142 West 15th Street, New York 11, N. Y.
ELEVATORS · DUMB WAITERS · RESIDENCE ELEVATORS · STAIR-TRAVELORS
ROTO-WAITERS · SIDEWALK ELEVATORS · FREIGHT ELEVATORS · DUMB WAITER DOORS
BUILDERS OF VERTICAL TRANSPORTATION SINCE 1893

ADDENDA

The theater at the Great Lakes Naval Hospital which was pictured on page 166 of the April issue of the ARCHITECTURAL RECORD was designed by Erwin G. Fredrick, Architect, of Chicago, Ill.

Our apologies to Marr and Holman, Architects, of Nashville, Tenn., for the omission of their name as designers of the Federal Office Building and U. S. Court in Nashville, a photograph of which appeared on page 160 of the May issue of the RECORD.

The jury, under chairmanship of Morris Ketchum, Jr. (center) studies an entry

MODERNIZATION WINNERS

First prize for "The Best Modernized Store of the Year" has been awarded to Kutler's, men's furnishings store of Long Beach, Calif., by the Third International Store Modernization Show. Architect for the store was Victor Gruen, of Gruen & Krummeck Associates. Presentation of the $150 award was made by John H. W. Evans, managing director of the show. Entries were submitted by Chambers of Commerce in 25 states and Hawaii.

Second prize went to the Pemberton Cadillac Building, an auto sales showroom in Toledo, Ohio, designed by Karl B. Hoke, Architect, and H. B. Carney, designer, both of Toledo. Third place went to the South Bend, Ind., entry, the Frances Shop, women's specialty store. Architects for the shop were Mielke & Smith, of Chicago.

(*News continued on page 166*)

New Cloverleaf Diffuser gives added flexibility to Projection Unit Heaters. Easily adjustable, the diffusion pattern exactly fits the needs of the job.

How do you like your unit heaters... with, or without?

How do you like your unit heaters . . . with or without adjustable diffusers? . . . with or without ductwork? . . . with or without ventilation air? . . . high velocity delivery? . . . low final temperature?

Do you want propeller type . . . blower type . . . vertical discharge . . . horizontal discharge . . . floor, wall, or ceiling mounting?

You can have what you want, *but not in any one type of unit.* Four distinct types are needed to meet requirements encountered constantly on jobs of any scope.

How do *you* handle such situations? Do you select from limited lines and juggle the job to fit the units? Or do you come to Trane, where *all four* basic types—shown below—are available? Select from this complete line and you won't have to put square unit heater pegs in the round holes of job requirements.

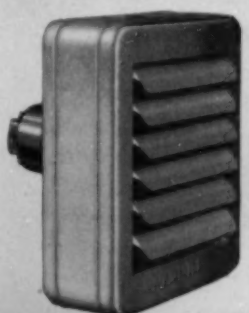
And remember, too, at this one-stop source of supply you can also secure your convectors, coils, unit ventilators, and heating specialties for steam or hot water. One company; one responsibility. And back of it all, on-the-spot cooperation from the best-trained engineering sales staff in the industry.

You have everything to win—with Trane.

THE TRANE COMPANY... LA CROSSE, WIS.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties . . . IN CANADA, TRANE COMPANY OF CANADA LTD., TORONTO.

Here are the "Four Freedoms" of unit heater selection: 1. *Twenty-four* sizes of horizontal units; 2. *Sixteen* sizes of vertical projection units; 3. *Twenty-four* combinations of compact force-flo heaters; 4. *Sixty-eight* standard arrangements of blower units.



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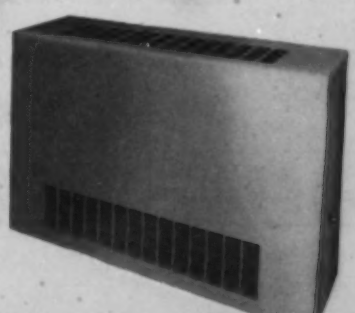

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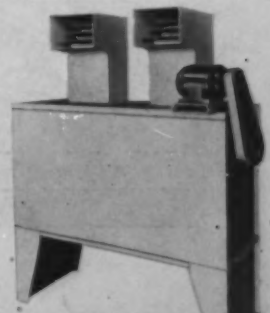

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THE RECORD REPORTS (*Continued from page 164*)

PREFABRICATED HOUSES

One out of every 25 houses (new, permanent single-family type structures) put under construction last year in non-agricultural areas in the United States was a prefabricated house, according to a report recently released by Prefabricated Home Manufacturers' Institute.

Prefabricators shipped 30,000 permanent-type homes during 1948. These dwellings represent approximately 4 per cent of the 773,000 non-farm single-family houses which the Bureau of Labor Statistics estimated were put under construction last year.

About 75 producers accounted for the 1948 shipments which put the number of factory-built homes erected in this country since World War II over the 100,000 mark.

IT'S "REYNOLDS" FOR LASTING BEAUTY AND ECONOMY

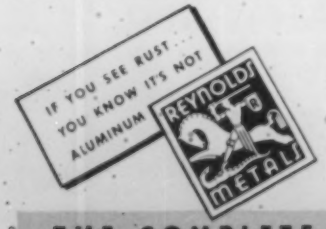
● Obtain smart, modern styling with Reynolds *Lifetime* Aluminum Architectural Shapes. Make your selection from the more than 65 standard shapes, created to meet your design requirements.

They're easy to obtain, too! Most of these bright, light, enduring aluminum shapes are warehoused from coast to coast for fast delivery. Whether it is a standard item—such as doors, jambs, thresholds, copings, windows, window sills or decorative trim—or special aluminum shapes designed to your specifications, Reynolds is prepared to quote on your requirements.

For complete data call your nearest Reynolds Office, listed under "Aluminum" in your classified directory, or write direct to the address below.

SEND FOR COMPLETE DETAILS

Engineering drawings of all standard shapes in one compact folder. Can be used for direct tracing. Write to Reynolds Metals Company . . . Aluminum Division, 2572 South Third Street, Louisville 1, Kentucky.



REYNOLDS METALS COMPANY
Aluminum Division, Louisville 1, Ky.

REYNOLDS *Lifetime* ALUMINUM

THE COMPLETE ALUMINUM SERVICE FROM MINE TO FINISHED PARTS

ON THE CALENDAR

Through Sept. 30: "Details of the City — Photographs by Godfrey Frankel," Museum of the City of New York, New York City.

July 13–15: Summer Convention, American Society of Civil Engineers, Mexico City.

Aug. 23–26: Pacific General Meeting, American Institute of Electrical Engineers, Fairmont Hotel, San Francisco, Calif.

Sept. 11–17: National Home Week, featuring housing exhibits in cities throughout the country.

Sept. 25–Oct. 2: Construction Industries Exposition, Sam Houston Coliseum, Houston, Texas.

Sept. 26–29: 51st Annual Convention of the American Hospital Association, Hotel Statler, Cleveland, Ohio.

AT THE COLLEGES

Award Winners

The recipients of two cash prizes in the 22nd annual collaborative competition for students of architecture, landscape architecture, painting and sculpture, sponsored by the Alumni of the American Academy in Rome, have been announced. First prize went to the team composed of Robert F. Storey, architect, and J. Sherman Thomas, landscape architect, students at Western Reserve University; Stephen Magada, painter, and Peter Stevens, sculptor, from the Cleveland School of Art. Second prize went to Rolv O. Enge, architect, University of Pennsylvania; Hugh Wiley, painter, and John J. Myers, sculptor, both of the Pennsylvania Academy of Fine Arts.

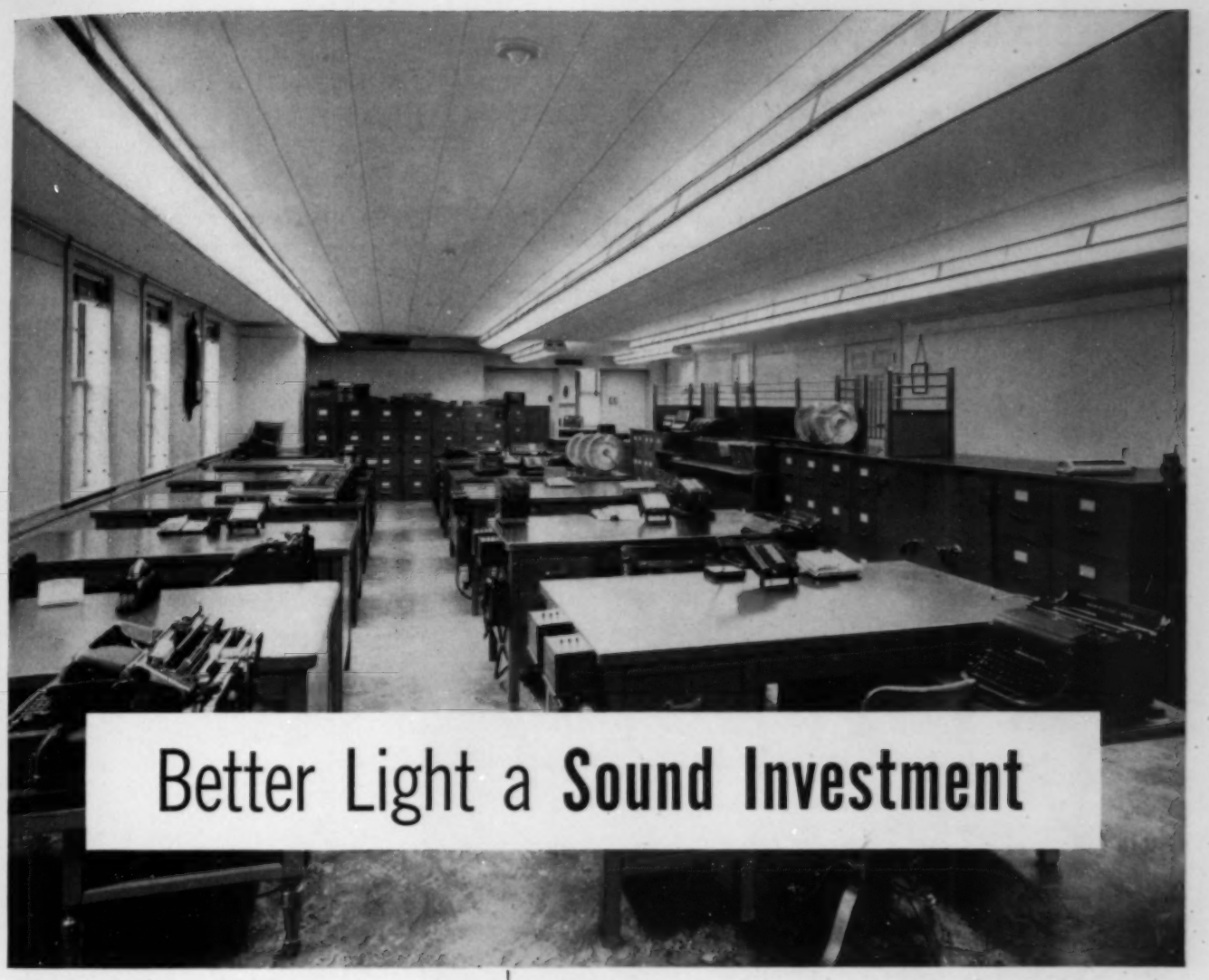
Sven Markelius, member of the United Nations Architectural Commission, has received the Howland Memorial Prize given by Yale University.

S. S. Granger, Architect, of Glendale, Calif., has been named winner of the nation-wide mission church design competition sponsored by St. Joseph's College. Second prize went to Joseph J. Shearer, Milwaukee, Wis., and third prize to W. J. Ruoff, architectural student at the University of Notre Dame.

Scholarships Established

An anonymous gift of $20,000 has been received by Columbia University for the establishment of a scholarship fund honoring Miss Lila W. Van der Smissen, former secretary and curator of

(*Continued on page 168*)



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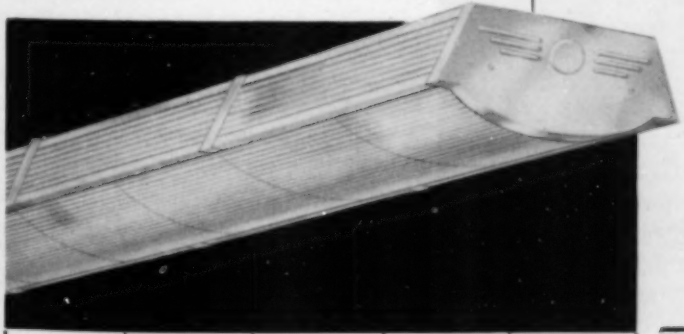

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Ideal for offices is this surface type fixture with intensive, well distributed downlight controlled by the prismatic action of Holophane Controlescent lenses. Luminous slanting side panels give good ceiling illumination and reduced contrast. Special baked, white plastic-type finish will not crack, peel or discolor.

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9224	2-40W	48⅛"	15"	6¾"
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9200-3 End cap for individual units or continuous runs

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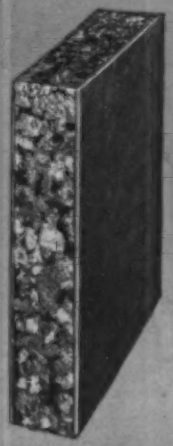
the Columbia School of Architecture, who died last year.

An annual award of $150 for the next five years has been set up by the Cleveland Chapter of the Producers' Council for upper classmen students in architecture at Western Reserve University.

Special Courses Offered

A course in lumber and building materials retailing will be offered for its first five-week summer session, starting July 25, at the College of the City of New York.

The Institute of Design in Chicago has announced that it will offer a six-week summer session course which will provide intensified teacher training in the Institute's foundation course. The course may be applied to students as preparation for advanced study in architecture and allied fields.



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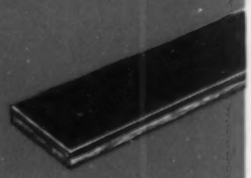

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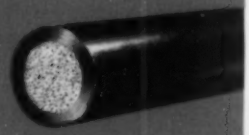

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The first regular summer session of architectural courses is being given this summer by the University of Oregon School of Architecture.

A summer seminar in industrial design is being conducted by Syracuse University.

Northwestern University will be the setting of a six-day course, from August 8–13, on hospitals in the planning stage. The Institute on Hospital Establishment, which is sponsored by the American Hospital Association, will be open to hospital administrators and representatives.

A six-week seminar in product design for representatives of manufacturing companies is being held at Lehigh University this summer. Leading industrial designers and product development men will be speakers at the seminar.

Faculty Appointments

Professor Bruce Goff has been reappointed Chairman of the School of Architecture of the University of Oklahoma for the school year 1949–50.

R. Buckminster Fuller, now conducting a seminar at the Institute of Design in Chicago, has been appointed dean of the Summer Institute at Black Mountain College, Black Mountain, N. C. He will bring with him to Black Mountain a group of graduates of that college and members of the Institute who will conduct a comprehensive basic workshop.

Carl W. Ernst, Jr. has been promoted to assistant professor in the Carnegie Institute of Technology department of architecture. He has been a member of the Carnegie faculty since 1945.

OFFICE NOTES

Offices Opened, Reopened

Col. Harry F. Cunningham, Consulting Architect, has opened an office at 1215 P St., Lincoln, Neb.

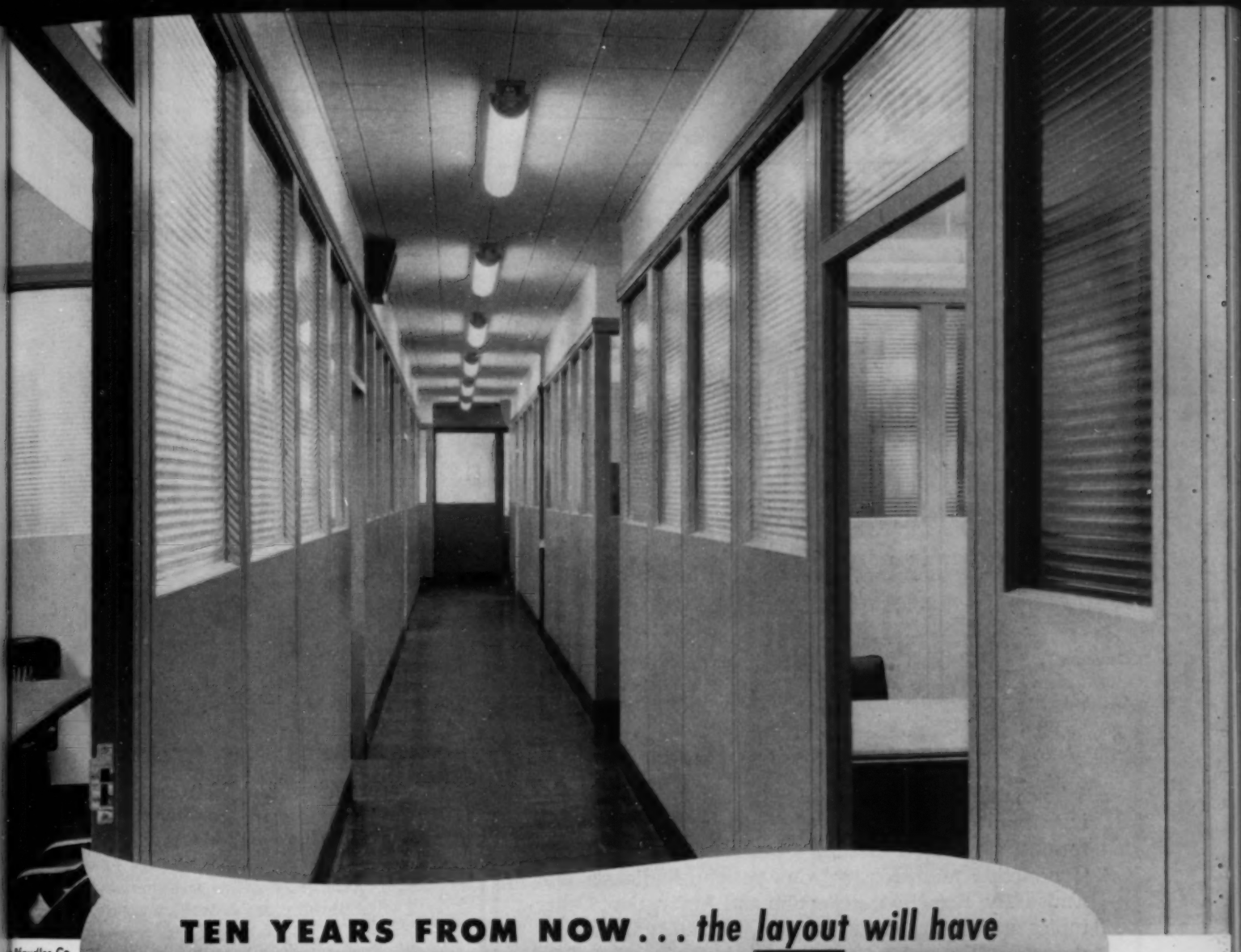
Eugene A. Dubin, M.A.S.C.E., has opened an office for the general practice of, and offering an advisory service in structural engineering and building design at 105 W. Monroe St., Chicago 3, Ill.

Harold M. Hansen, Architect, has opened an office at 210 Post St., San Francisco, Calif.

Hutchings & Milani, Architects, Engineers and General Contractors, have opened new offices offering services on large hotel, industrial and resort developments. Their address is the Marshall Bldg., Hamilton, Bermuda.

Tom Hutchins, Architect, has an-

(*Continued on page 170*)



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nounced the opening of an office for the practice of architecture at 653 Salisbury Rd., Statesville, N. C.

C. J. Kordys, Architect, has opened his own office for the practice of architecture at 264 New York Ave., Newark 5, N. J.

Fay R. Spangler, Architect, has announced the opening of a new office for the general practice of architecture at 225 Anglo Bank Bldg., Fresno, Calif.

New Addresses

The following new addresses have been announced:

Dubin and Dubin, Architects and Engineers, 140 N. Dearborn St., Chicago 2, Ill.

Malcolm Graeme Duncan, A.I.A., 307 Harwood Bldg., Scarsdale, N. Y.

Lawrence and Dykes, Architects, 125 Valleyview Ave., N.W., Canton 8, Ohio.

Levy & Scheingarten, Architects, 1162 E. Jersey St., Elizabeth 4, N. J.

McCoy & Blair, Architects (Robert S. McCoy and G. Norman Blair), 4 Chatsworth Ave., Larchmont, N. Y.

John P. O'Neill, Architect, 522 Columbia Bldg., Spokane 8, Wash.

Rogers & Butler, Architects, 219 E. 44 St., New York 17, N. Y.

Savo Milan Stoshitch, A.I.A., 427 W. Fifth St., Los Angeles 13, Calif.

New Firms, Firm Changes

Henry Otis Chapman and Randolph Evans, Architects, have announced a change in their firm name to include the name of William E. Delehanty. The firm of Chapman, Evans and Delehanty now has its offices at 50 Broadway, New York 4, N. Y.

Robert H. Edwards and Carl B. Stoye have announced the formation of a partnership for the practice of architecture under the firm name of Edwards and Stoye. Address: 22 Main Street, Sayville, L. I., N. Y.

ELECTIONS, APPOINTMENTS

L. C. Cartwright has been elected secretary of Foster D. Snell, Inc., New York consulting firm of chemists and engineers. Elected to serve with him were: Albert F. Guiteras, treasurer, and Louis J. Bowlby, Jr., assistant treasurer.

James R. Edmunds, Jr., past president of the A.I.A., has been reelected chairman of the Construction Industry Advisory Council.

Paul Oppermann has resigned his post as urban planning officer for the Federal Works Agency to become director of the San Francisco City and County Planning Commission. Tracy B. Augur, formerly of the TVA, has been assigned to the FWA to succeed him.

Louis Skidmore, of the architectural firm of Skidmore, Owings & Merrill, has been elected president of the New York Building Congress. Elected to serve with him were, vice presidents: William L. Crow, president, William L. Crow Construction Co.; C. G. Dandrow, vice president, Johns-Manville Sales Corporation; Richard V. Hyland, of Madigan-Hyland; Howard McSpedon, president, Building & Construction Trades Council of Greater New York, Long Island & Vicinity, and Harold R. Sleeper, Architect; A. E. McKenzie, of the Detroit Steel Products Company, secretary; H. C. Turner, Jr., president, Turner Construction Co., treasurer, and O. L. Nelson, vice president, New York Life Insurance Co., chairman of the finance committee.

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Included, is the famous "Chart of Thermal Insulation Values," which has been revised and amplified. It contains specially compiled information on *k*, C, R and U factors of all insulations, of all thicknesses, on their densities, weights, cubic contents, etc., nowhere else grouped in so convenient form.

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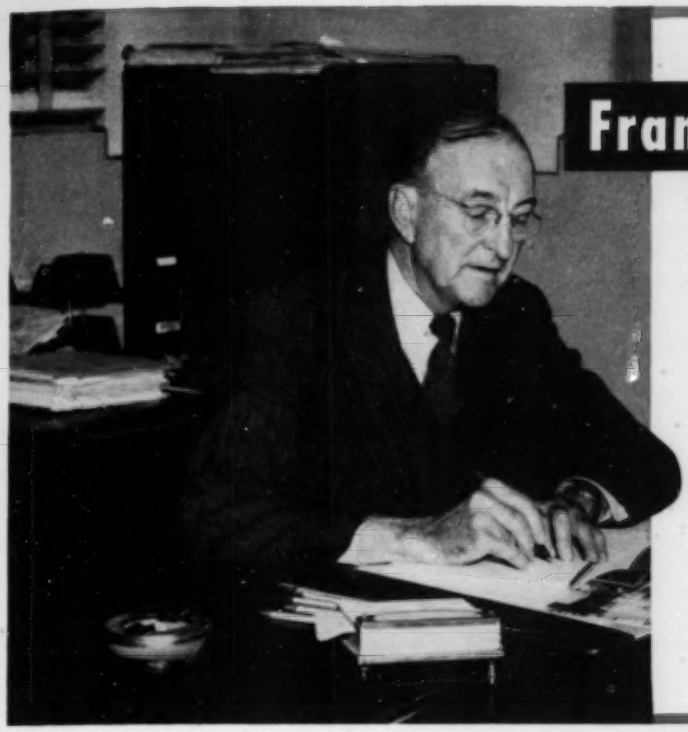

Frank Tyler OF HERMAN NELSON

One of the veterans of Herman Nelson's nationwide organization, Frank Tyler, Manager of the Moline Branch Office, has been in the heating and ventilating business since 1905. During his 30 years' association with The Herman Nelson Corporation, Mr. Tyler has served in many capacities. While in the Product Application Engineer Service Department, Mr. Tyler became well-known to Architects, Engineers and Contractors throughout the country as an expert in the design and application of heating and ventilating systems. Before becoming Manager of Herman Nelson's Branch Office in Moline, he was Chief Product Application Engineer, in which position he was responsible for training all sales personnel for the company. Territory served by his Branch Office includes northwestern Illinois and eastern Iowa.

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MOLINE, ILLINOIS

 (*Continued from page 10*)

ably with no future. It was nevertheless a business-like affair, complete with a competition, a ballroom full of materials and equipment exhibits, a program almost staggering in scope and detail, not forgetting Frank Lloyd Wright as the banquet speaker.

Aside from the last-mentioned item, always productive of some excitement, the most fireworks popped in the competition judgment, where controversy raged far into the night. Any observer could have seen, even if he didn't already know it, that the judges really tore into each other, merely because so much oil was spread in public. Which is really a way of saying that the competition was a tremendous success and the entries excellent.

An interesting fact about the judgment was that the jury had a strong representation from the operating side of the hospital, so that architectural niceties could not run away with somebody's enthusiasm. In this case some architects registered primary enthusiasm about one of the other winners, not the first, and could cite strong planning reasons for their choice, but they had to back down against the operating circulation of the first prize winner. In the end the student competitors, the jury, and assembled architects had an educational experience of a high order.

Problem of the competition was a 35-bed general hospital for a small southern city, limited to students in selected southern technical schools. Prize money of $500 was donated by the Wilmot Castle Company, Rochester, N. Y., manufacturers of hospital sterilizers. Prize winners were:

First, James G. Cheyne, Jr., Alabama Polytechnic Institute;

Second, Carroll C. Harmon, North Carolina State College;

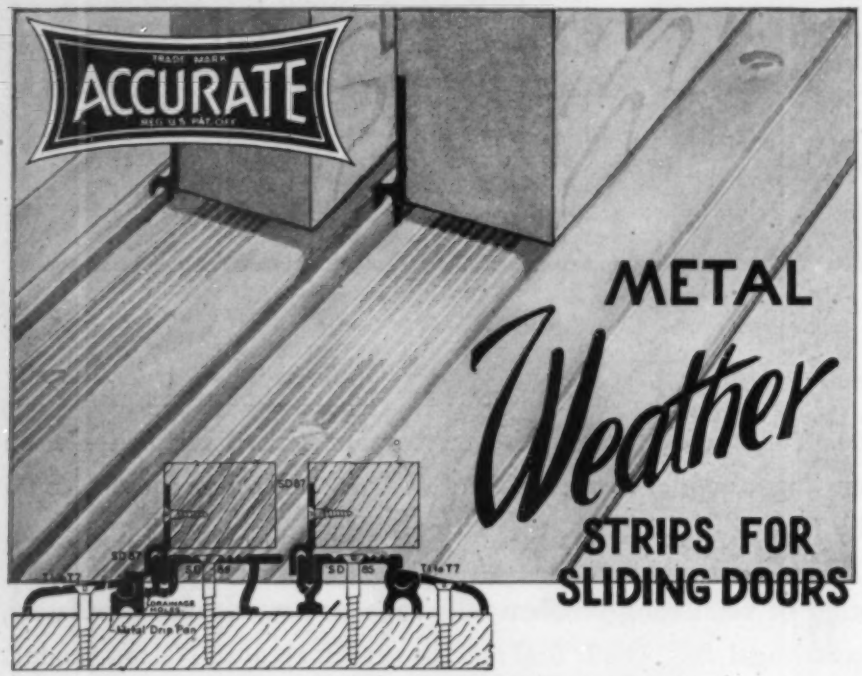
Third, Fred L. Harrison, Georgia Institute of Technology.

Five honorable mentions were given to George J. Wallace, Alabama P. I.; Bond R. Sedberry, Clemson; Byrn E. Haner, Virginia P. I.; and Thomas T. Hayes, Jr., North Carolina State. Drawings submitted to the jury had already won elimination rounds in their respective colleges.

The jury included: Edward D. Stone, chairman; Thomas H. Creighton, professional adviser; A. L. Aydelott, architect; H. G. Hughes, chief, Hospital Design Division, Department of Health & Welfare, Ottawa, Canada; William A. Riley, architect; Everett W. Jones, "Modern Hospital"; Marshall Shaffer, chief, Office of Technical Services, U. S. Public Health Service; and Louise Waagen, chief, Hospital Nursing Section, U. S. Public Health Service.

Another student design was exhibited, though not entered in the official competition. This was a hospital designed by a group of architectural students at Tulane, under the direction of Prof. William R. Allen, Jr. This project was undertaken for the twofold purpose of giving the students a tangible problem — a hospital for Picayune, Miss. — and of accomplishing some public relations advance for the profession in general.

Papers at the convention were designed virtually to prepare a textbook on hospital planning. Arrangements are now being made with a view to publishing them in toto as the permanent record of the conference.



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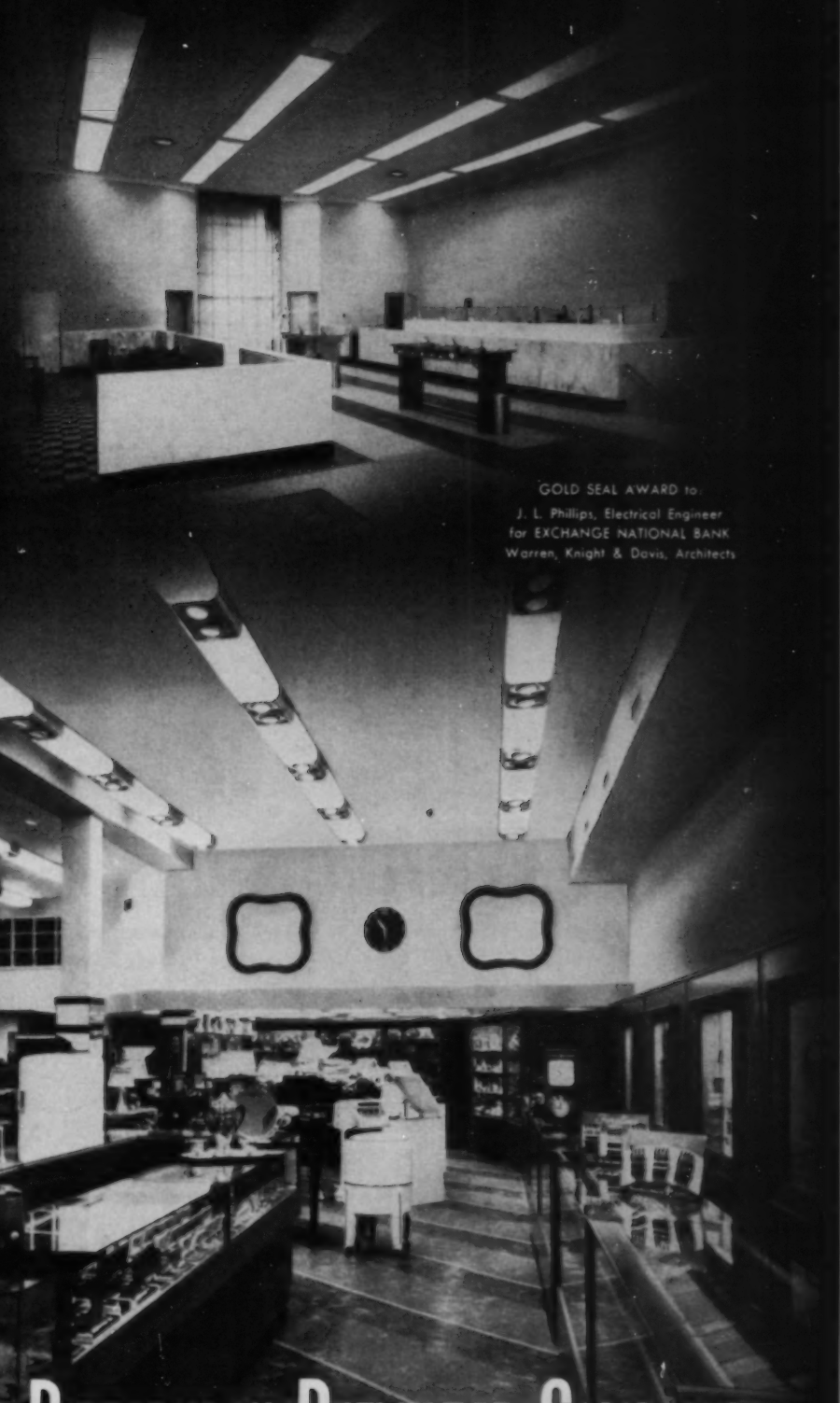

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(*Continued from page 146*)

from any position upon the drawing board, and to have special scales which instantly reduce distant portions of the subject to their correct proportions.

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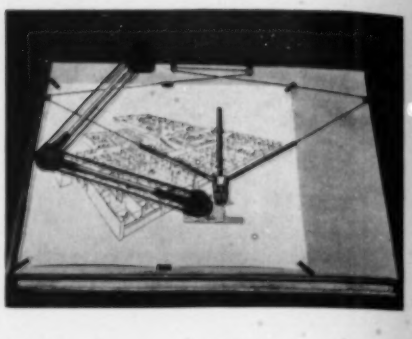

Drafting instrument designed to simplify the task of making perspective drawings

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Actual size of the instrument is 4 ⅛ by 8¾ in. Rapidesign Inc., P. O. Box 592, Glendale, Calif.

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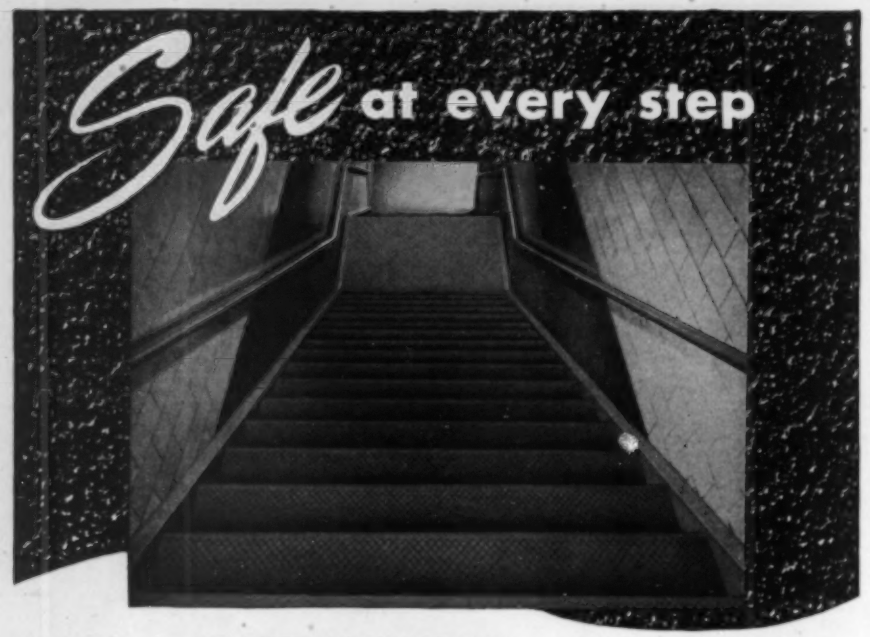
(*Continued on page 176*)



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(*Continued from page 174*)

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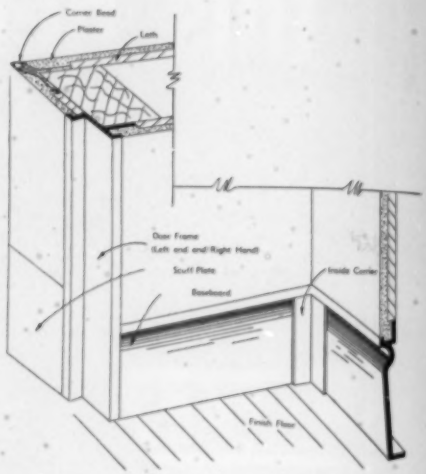
Long life, rich beauty, ease of application . . . and economy without sacrifice of quality: they are all important in determining roofing value.

When you specify Bird Master-Bilt® Shingles, you can be sure of a roof which contains *all* these elements. Master-Bilt's are an investment . . . an investment your customers can make at an economical price . . . and that is becoming more and more important as time goes on.

Master-Bilt Shingles offer more than economy. Thick-butt construction, heavy shadowlines, narrow cut-outs all reflect Bird experience since 1795. *Every* material is processed by Bird, another reason for the balanced composition and quality of Bird Master-Bilt Shingles. A roof of Master-Bilts adds inimitable beauty and texture, as well as protection, for they are available in a wide range of colors and blendes, in more variety than is found in any other roofing material. Write us today for information about Master-Bilt and Master-Bilt Weather-Tex designs. Bird & Son, inc., 17 High Street, East Walpole, Mass.

BIRD *Master-Bilt* SHINGLES

East Walpole, Mass. *New York* BIRD & SON inc. Established 1795 *Chicago* *Shreveport, La.*



Aluminum interior trim, installed flush with plaster, eliminates dust-catchers

ALUMINUM INTERIOR TRIM

Extruded, aluminum alloy interior door frames, baseboard and window moldings are being offered in a new line to be used in place of the conventional type of wood trim around door openings, windows and room interiors.

Door frames prefabricated to any size opening come in three pieces — two side shafts and header — with hinge locations, lock striker, screw holes and nail holes incorporated during manufacture. Window molding, used with wood window construction, is attached to the window jamb, serving as a plaster ground. The ledge of the baseboard, which is installed and nailed to the studs before plastering, also becomes a plaster ground.

These interior trims are said to provide a surface as smooth as plaster from floor to ceiling, eliminating protruding dustcatchers. Alloy Trim Inc., 217 W. Mile Rd., Detroit 3, Mich.

DECORATIVE PLYWOOD PANELS

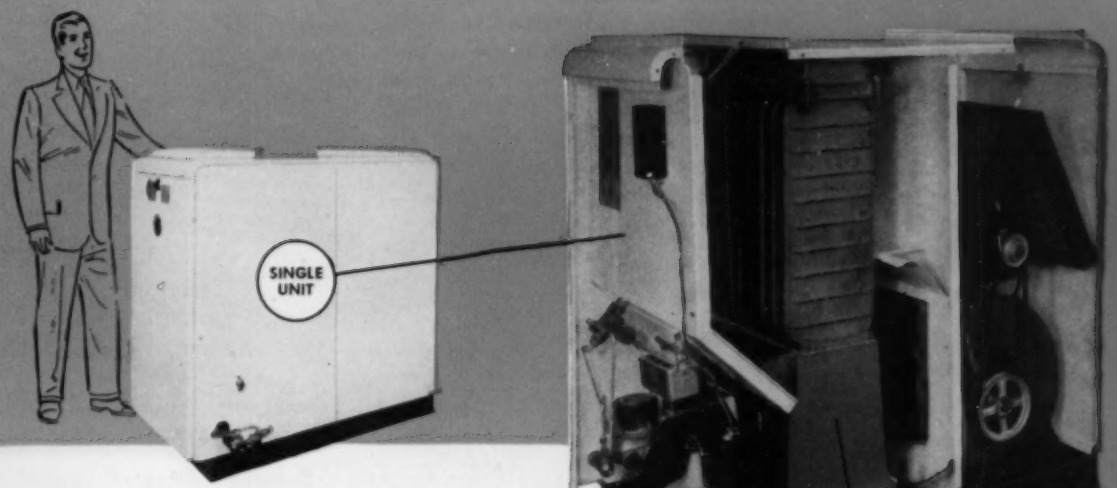
Plytex plywood decorative panels of Douglas fir, California redwood and Southern pine are furnished in a variety of hues and tones to blend with the chosen style of any room interior.

The panels are washable and guaranteed by the manufacturer for the life of the house.

Plytex panels measure 4 ft. by 8 ft.

(*Continued on page 178*)

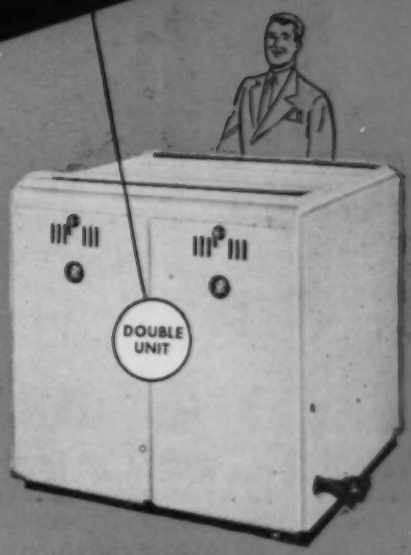
Job sizes—no problem with the NEW RICHMOND TWIN UNITS!



With the addition of three new "twin-units," Richmond's complete line of cast-iron Gas Winter Air Conditioners is able to fill most any warm air job. Large estates or compact cottages—medium size homes or commercial installations—there is a unit in the Richmond line to fill your need.

Check these capacities—they range from 66,000 to 280,000 BTU input. Models GHA 22-23-24 are paired up in a handsome "whiter-white" steel jacket with one set of controls—the GHA 1, 2, 3 and 4 are single units. All jackets are only 42" high—giving plenty of head and duct room. For jobs where floor space is at a premium, vertical units (same ratings as GHA 1, 2, 3 and 4) are available.

UNIT NO.	AGA RATINGS	
	INPUT BTU PER HR.	OUTPUT BTU PER HR.
GHA-1	66,000	52,800
GHA-2	90,000	72,000
GHA-3	115,000	92,000
GHA-4	140,000	112,000
GHA-22	180,000	144,000
GHA-23	230,000	184,000
GHA-24	280,000	224,000



A unit designed with the TRADE in mind!

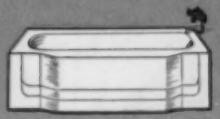
RICHMOND RR PLUMBING & HEATING

RICHMOND

RICHMOND RADIATOR CO.—AFFILIATE OF REYNOLDS METALS CO.

Vitreous China

Gas Boilers



Enameled Cast Iron Ware

Winter Air Conditioners
Gas—Cast iron or steel
Oil—Steel

See your wholesaler or MAIL COUPON TODAY AR-7

Richmond Radiator Company
19 East 47th Street, New York 17, N. Y.

Please send me complete information and illustrated folder on the new twin unit Richmond Gas Winter Air Conditioners. No obligations, of course.

Name.....

Company.....

Address.....

(Continued from page 176)

Aetna Plywood & Veneer Co., 1731 Elston Ave., Chicago, Ill. and Davis Plywood, 12555 Berea Rd., Cleveland, Ohio.

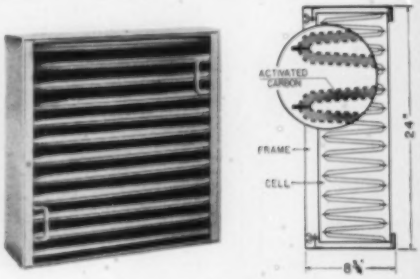
AIR RECOVERY UNIT

A self-contained, cell-type unit for air conditioning and ventilating systems has been designed to provide a simple, effective air purification device which the manufacturer says can be installed and serviced "with the ease and facility of a dust filter."

Known as the *Type "C" Cell*, this unit has a capacity of 1000 cu. ft. of air per minute, with overall dimensions of 24 by 24 in. by 8¾ in.

A filter face area of 28 sq. ft. in a space of less than 3 cu. ft. is provided by the "accordion pleat" construction of the filter element.

The cell may be installed in multiple, in either flat or "V" arrangement. For abnormal odor concentrations two cells in series per 1000 cfm are recommended. W. B. Connor Engineering Corp., 112 E. 32nd St., New York 16, N. Y.



Air purifier, utilizing activated carbon filter cells, has capacity of 1000 cfm

BUILDING LETTERS

Building letters of cast aluminum alloy and bronze, porcelain enamel steel and stainless steel are designed to enable the architect to work exterior sign identification of a building into the general design theme.

Letters of Depth, which can be alumilited to prevent tarnishing and corrosion, can be mounted free standing, projected or flush on the face of the building.

The letters are handcrafted to any size or style and are said to be easily adapted for direct or indirect illumination. They are also available in a large variety of stock patterns, ranging in size from 6 to 36 in. Nelson-Harkins Industries, 2023 N. Damen Ave., Chicago 47, Ill.

DIFFUSING FINISH

Described as an indestructible diffusing finish, the *Neo-Matte* alumilite finish is now available in the ML-2448 louvred ceiling.

The new finish, which is reported to be practical for either indoor or outdoor use, is achieved by an electrochemical treatment which gives the surface a permanent frosted silver finish. Neo-Ray Products Inc., 315 E. 22nd St., New York 10, N. Y.

FURNITURE FOR PUBLIC USE

Budget furniture for public spaces is offered in a new line which features a special design and construction intended to withstand the heavy punishment of public use.

The William Armbruster Budget Series includes a side chair of natural-

(Continued on page 180)

Marble for Stability

Real Estate Trust Company, Philadelphia, Pa.
Highland Danby Marble Exterior Trim, Sidney Martin and Associates, Architects,
John P. Hallahan Co., Contractor.

Today, the architect and owner should give even more careful consideration to the building material they employe. They should choose wisely, with an alert eye to stability, beauty, and low maintenance.

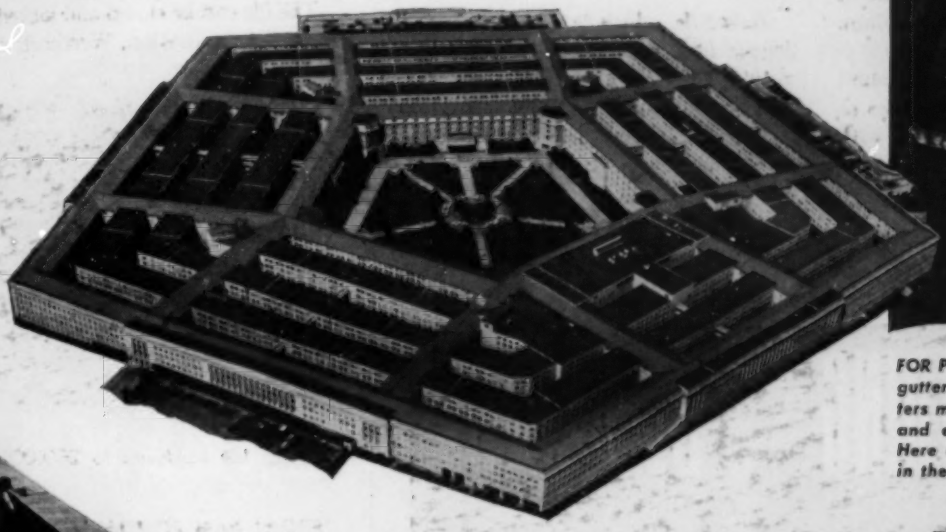
Vermont Marble is the answer. Whether to enhance entire exteriors with monumental character, or for the embellishment of structural materials, marble is unsurpassed. In either the interior or exterior phase of the building program marble most effectively embodies:

"Color · Character · Permanence · Low Maintenance"

Those structures which serve a purely monumental purpose, public or private, will also benefit by the stability, economy, and crystalline beauty of Vermont Marble.

VERMONT MARBLE
VERMONT MARBLE COMPANY · PROCTOR, VERMONT
Branch Offices:
Boston · Chicago · Cleveland · Dallas · Houston · Los Angeles · New York · Philadelphia · San Francisco
Ontario Marble Co., Toronto, Ont.

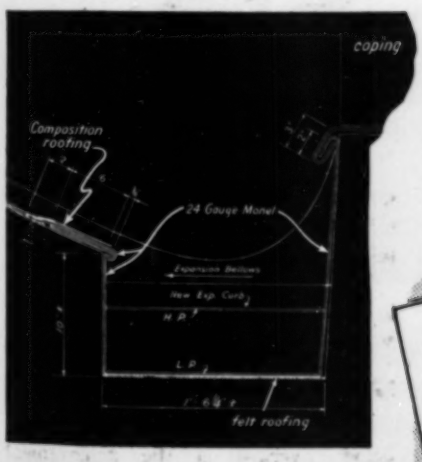
Famous Pentagon gets *replacement* gutters...



FOR PERMANENT PROTECTION, the old gutters have been replaced with gutters made of strong, corrosion-resistant and economical Monel Roofing Sheet. Here a worker solders a riveted seam in the gutter lining.

INSTALLING A RIVETED AND SOLDERED section of Monel Roofing Sheet in the built-in gutter of the Pentagon's outer perimeter. Fabricator, Rupertus Sheet Metal Works, Washington, D. C., reports: "Some of the gutters were 55 inches in girth, but Monel was easy to fabricate and install."

* * *



DETAIL OF SECTION of built-in gutter showing how Monel Roofing Sheet was used.

...and this time they're MONEL!

There were two reasons why it was decided to put new gutters on the Pentagon Building.

Repairs to the existing gutters would have been costly. And – more important – repairs would have provided only temporary relief.

Replacement was the only *permanent* solution.

So replacement it was. And this time the gutters were fabricated of Monel® Roofing Sheet.

Advantages of Monel

With its low expansion rate, its high strength and toughness, its resistance to fatigue and corrosion, Monel Roofing Sheet assures "life-of-the-building" protection for the Pentagon. The new gutters are safe from damage by heat, cold, rain, snow, ice and airborne corrosives.

Use light-gauge sheet

Cost-wise, too, there were advantages in using easy-to-form Monel Roofing Sheet on the Pentagon Building. Because of this nickel-copper alloy's greater strength and rigidity, it was possible to use a lighter-gauge sheet for the gutters.

As a result, material cost and installation cost were both reduced.

Get NEW architects' bulletin

Other benefits, too, go hand in hand with the use of Monel Roofing Sheet. You'll find them covered in our brand new bulletin, *Basic Application Data – Monel Roofing Sheet.*

This new publication lists suggested gauges of Monel Roofing Sheet for principal building applications, reviews its characteristics, and tells about its relative cost and availability. Installation procedures are discussed and a sample specification wording provided.

Send for your copy – *now.*

®Reg. U.S. Pat. Off.

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67 Wall Street, New York 5, N. Y.

MONEL...FOR THE LIFE OF YOUR BUILDING

Architectural Section
The International Nickel Company, Inc.
67 Wall Street, New York 5, N. Y.

I'd like to know more about durable, economical Monel Roofing Sheet. Please send me without obligation your new folder, *Basic Application Data – Monel Roofing Sheet.*

NAME.....

COMPANY.....

STREET.....

CITY..... ZONE..... STATE.....

AR-7-49

(*Continued from page 178*)

finish birch and an upholstered side chair and matching arm chair made of kiln-dried white oak in light, medium and dark finishes.

The upholstered side chair has straight sides so that it can be used in rows as well as singly, or can be alternated with the arm chair to provide arm chair seating at lower unit cost. Edgewood Furniture Co. Inc., 208 E. 27th St., New York 16, N. Y.

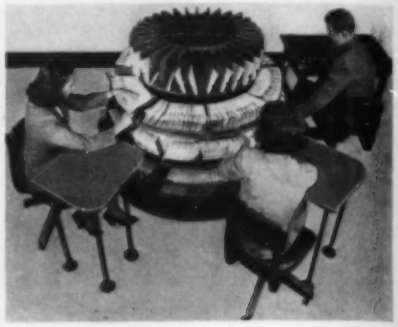
CIRCULAR FILE

Rota-File, which is adapted for card ledger files of any normal size, is a rotating file on a horizontal plane about 5 ft. in diameter.

Tiers of racks for cards are designed to aid in filing different types of cards, and there are no trays to pull and return. One or more operators sit in one position and can, in a few seconds, bring any card to hand by turning the file.

Built to house the normal numerical and/or alphabetical arrangements, Rota-File is said to be practical for file loads of 5000 to 200,000 items.

The file can be closed and locked. The Wassell Organization, Westport, Conn.

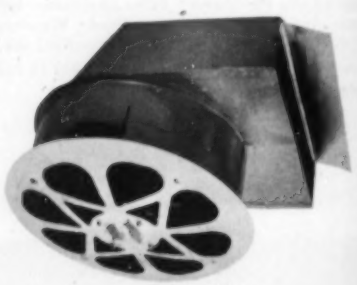


Rotating file holds up to 200,000 items

CEILING FAN FOR HOUSES

A ceiling fan for residences said to be ideal as a ventilating unit for rooms where the wall type installation is impractical is now on the market.

The *Ventrola 30-C* is powered to move 500 cu. ft. of free air per minute. Back draft and heat loss are prevented through the use of two self-acting shutters that open and close automatically with the starting and stopping of the fan.



Fan for ceiling installation in houses

An induction-type motor operates with 110–120 volts, 60 cycle a-c. The motor is shielded to prevent radio or television interference.

The required ceiling opening is 11¼ in. National Appliance Co., 4814 W. Vernor, Detroit 9, Mich.

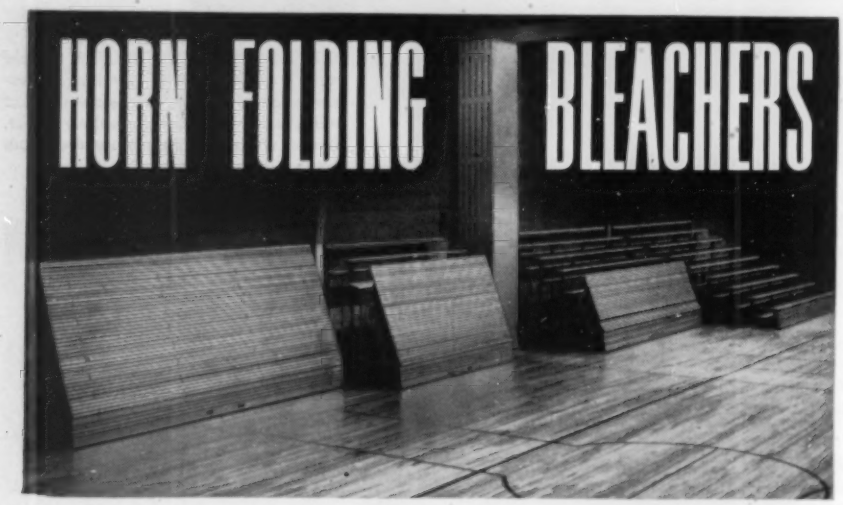
RADIANT HEAT PANELS

Radiant heating at a cost 25 per cent below average is the achievement claimed for the new *Electriglas* Radiant Heat Panels.

Increased efficiency of the panels is said to result from the special curved

(*Continued on page 182*)

HORN FOLDING BLEACHERS



Horn Folding Bleachers and Horn Folding Partitions for Greater Space Utilization

CHECK YOUR SPACE REQUIREMENTS	ROWS	FLOOR SPACE IN USE	FLOOR SPACE *CLOSED	**HEIGHT
	3	4 Ft. 9 In.	1 Ft. 8¾ In.	3 Ft. 0 In.
	4	6 Ft. 7 In.	2 Ft. 0⅛ In.	3 Ft. 9 In.
	5	8 Ft. 5 In.	2 Ft. 3½ In.	4 Ft. 6 In.
	6	10 Ft. 3 In.	2 Ft. 6⅞ In.	5 Ft. 3 In.
	7	12 Ft. 1 In.	2 Ft. 10¼ In.	6 Ft. 0 In.
	8	13 Ft. 11 In.	3 Ft. 1⅝ In.	6 Ft. 9 In.
	9	15 Ft. 9 In.	3 Ft. 5 In.	7 Ft. 6 in.
	10	17 Ft. 7 In.	3 Ft. 8⅜ In.	8 Ft. 3 In.
	11	19 Ft. 5 In.	3 Ft. 11¾ In.	9 Ft. 0 In.
	12	21 Ft. 3 In.	4 Ft. 3⅛ In.	9 Ft. 9 In.
	13	23 Ft. 1 In.	4 Ft. 6½ In.	10 Ft. 6 In.
	14	24 Ft. 11 In.	4 Ft. 9⅞ In.	11 Ft. 3 In.
	15	26 Ft. 9 In.	5 Ft. 1¼ In.	12 Ft. 0 In.
	16	28 Ft. 7 In.	5 Ft. 4⅝ In.	12 Ft. 9 In.
	17	30 Ft. 5 In.	5 Ft. 8 In.	13 Ft. 6 In.
	18	32 Ft. 3 In.	5 Ft. 11⅜ In.	14 Ft. 3 In.
	19	34 Ft. 1 In.	6 Ft. 2¾ In.	15 Ft. 0 In.
	20	35 Ft. 11 In.	6 Ft. 6⅛ In.	15 Ft. 9 In.

*Dimension includes 4½ in. space between top seat and wall.
**Height in open position same as closed. For Bleachers higher than 20 Rows write for complete details and dimensions.

FOR SEATING CAPACITY FIGURE 16" PER PERSON. WRITE FOR COMPLETE DETAILS ON THE "3 IN 1 HORN GYM PLAN". NO OBLIGATION.

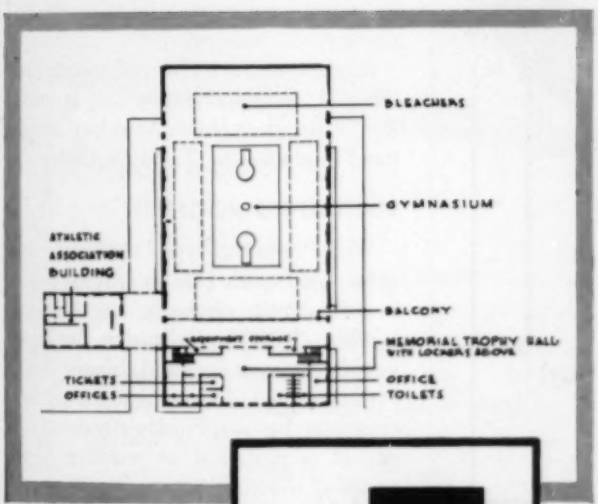
HORN BROTHERS CO.
A DIVISION OF HORN INDUSTRIES
FORT DODGE, IOWA — ESTABLISHED 1909

Your school or college plans can include

a fine, new field house like this

for much less than you think!

... because LURIA *can meet your exact requirements from a low-cost, standard line*



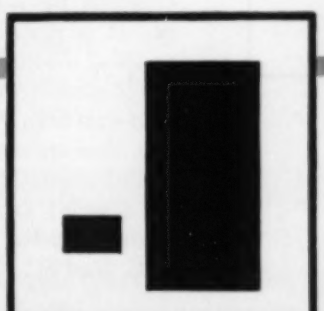
Plan includes two buildings—one 100 feet wide and 200 feet long with 20-foot eave height, the other 40 feet wide and 60 feet long with an eave height of 12 feet.

At first glance the imposing field house and athletic association building above may appear to be far beyond the average school or college budget. But, actually, they are low-cost Standard Buildings by Luria — *permanent* structures which more and more architects are using to trim today's high building costs.

These architects are finding that by using heavy steel-frame Luria buildings, they can design virtually any one-story unit for less money and at the same time meet the most exacting building codes. Moreover, Luria structures are easy to erect, economical to maintain and available now.

Far from limiting the imagination of the architect, Luria buildings create new opportunities for design, and widen the circle of his prospective clients. For here is a new and flexible medium to work with, offering the architect a wide choice of collateral materials, optional features and multiple arrangements.

And Luria buildings are by no means limited to schools. Shopping centers, bus terminals, churches, industrial buildings — these are just a few of hundreds of applications where the Luria line offers all the cost-saving advantages of standardization, along with the widest possible architectural freedom. Send the coupon below for our new 20-page catalog.



STANDARD BUILDINGS BY LURIA

Luria buildings are available now—with clear spans of 40 to 100 feet, eave heights of 12 to 20 feet and any desired length in increments of 20 feet.

LURIA ENGINEERING CORPORATION, Dept. D33
500 Fifth Ave., New York 18, N. Y.

Gentlemen: Please send me a copy of your new catalog (AIA File 14i).

NAME.....

COMPANY.....

ADDRESS.....

CITY.....STATE.....

(*Continued from page 180*)

construction and new composition of the glass, which is made of Temprex glass into which a metallic alloy grid has been fused.

Electriglas panels can be connected with conduit or cable to present a-c or d-c 110-volt, 220-volt circuits, and portable models are also available to provide quick heat for cold rooms, play rooms, rooms used only occasionally or rooms in use after the central heating plant has been shut off for the night or for the summer.

The new heating element is guaranteed for life against structural defects. Appleman Glass Works, Bergenfield, N. J.

SLIDING SASH

Adaptable to the conventional window openings of any type building is a glass block window, with sliding vision strip sash, which is said to be strong and rigid enough to provide its own lintel.

Sliding vision sash makes it possible to wash outside of this glass block window

The new windows, which may be used singly or in multiples, give vision and ventilation with single pane or double glazing. The sliding sash makes it possible to wash the outside of the window in the same manner as any conventional double-hung window.

Frames are shipped completely assembled ready for glazing and installation of the glass block. American Structural Products Co., Toledo 1, Ohio.

VENTILATING ROOFS

Wide "venturi-type" orifices and other features are said to provide maximum exhaust efficiency in the new *Agitair "CNO" Exhauster* for roof ventilating, vent flues and chimney tops.

Constructed of heavy gauge steel, the exhauster has a corrosion-resistant finish. It is described as weather proof under all conditions.

The exhauster is available in standard head sizes from 5 to 48 in. The 5 in. and 8 in. sizes are completely assembled, all welded construction. The larger sizes are supplied knocked down for quick assembly on the job. Air Devices Inc., 17 E. 42nd St., New York 17, N. Y.

ALL-ALUMINUM SCREEN DOOR

An all-aluminum screen door, fabricated of strong, hollow extruded aluminum sections, has been designed to eliminate the problem of fitting doors to house openings that have sagged or are otherwise out of line.

Fitting to house door opening is assured by having the door opening squared and adjusted to the proper size

(*Continued on page 184*)

5 – 4 = 1 Save $1

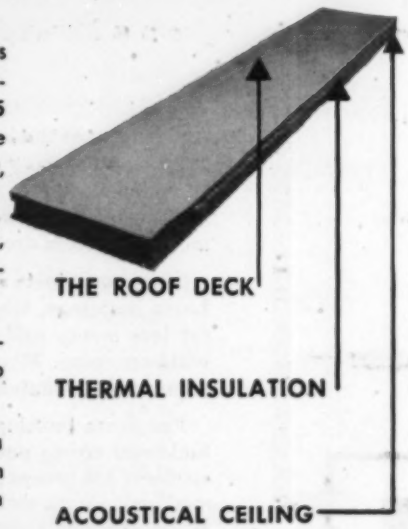
OUT OF EVERY $5
by using
the Durisol Insulated Roof Plank

This roof plank combines so many functions in one material...all at one low installation cost...that **$4 does the work of $5** as compared with other materials. Note the 3-in-1 advantages of this light-weight, precast, factory-coated plank:

1 Fireproof, reinforced, cement-surfaced, and ready for application of the built-up roofing.

2 Because Durisol itself is such an effective barrier against heat losses, no additional insulation is required.

3 Noise-deadening ceiling at no extra cost... distinctive and pleasing in appearance, with a sound absorption coefficient of 0.87 at 512 cycles.



DURISOL is made from chemically mineralized wood fibres bonded with Portland cement and moulded under pressure. It is unaffected by moisture and is proof against rot, mould, vermin, termites—proved incombustible by laboratory tests.

Thickness	Width	Maximum Span	Weight per sq. ft.	Long Edge	Load
3¼"	16"	6'8"	15 lbs.	Tongue and Groove	40 lbs. per sq. ft. live load with high safety factor.
4¼"		8'	18 lbs.		

For complete information, write for folder (A.I.A. File Number 4-K). Also see catalog 3c/13a, Sweet's File Architectural, 1949.

DURISOL, INC. 420 Lexington Avenue, N. Y. 17, N. Y.

DO YOU HAVE THIS FREE BOOK?

It tells what you want to know about

Radiant Heating

● This 48-page book, "Radiant Heating with National Pipe" is one of the most authoritative books published on the subject. It brings you a complete, comprehensive story of radiant heating and gives helpful information as a practical basis for the planning and installing of an efficient system.

Architects, heating engineers and contractors will find the book valuable for use in planning new installations. It answers many important questions about radiant heating. For example —

What is the approximate cost of a radiant heating system?

Would it cost more or less to operate a radiant heating system than other types, and by how much?

What effect do rugs and rug pads have on heat transfer in a radiant heating system?

These and many other questions are competently answered. This book also shows you how to calculate pipe sizes for various conditions. Mail the coupon and a copy will be sent at once.

Here are some of the subjects covered:

What is radiant heating?
How radiant heating is designed for comfort.
How to estimate heat losses.
How to determine radiant heating coil requirements.
Radiant heating comfort chart.
What heating engineers claim for radiant heating.
Methods of floor and ceiling installation.
Typical pipe coil patterns.
Questions and answers on radiant heating.
Heat transmission tables.

National Tube Company
Frick Building
Pittsburgh, Pa.

Gentlemen:

Please send me a copy of your FREE book, "Radiant Heating with National Pipe."

Name.....

Position.....

Company.....

Address.....

NATIONAL TUBE COMPANY, PITTSBURGH, PA.
COLUMBIA STEEL COMPANY, SAN FRANCISCO,
PACIFIC COAST DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

NATIONAL Steel PIPE

UNITED STATES STEEL

Specialized

Industrial Elevators

For plants, warehouses, industrial installations . . . you can give your clients many extra advantages with Globe Oil Hydraulic Industrial Elevators. No pent house or load bearing walls required, lower initial cost, advanced safety features, simplified installation. Best for heavy materials-handling trucks. Hold down or automatic push button control. Write for full data and specifications.

Globe's specialized Lifting Engineers offer you a broad service on all types of Industrial Lift problems, without obligation. Write today for Bulletin A749 giving illustrations and engineering specifications on

Loading Ramps
Loading Lifts
Production Lifts
Sidewalks Lifts
Industrial Truck
Service Lifts
Elevators

GLOBE HOIST COMPANY
Des Moines 6, Iowa; Philadelphia 18, Pa.

(*Continued from page 182*)

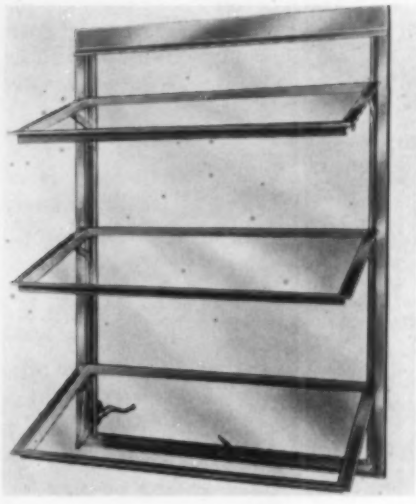
with wood stripping, which is then covered with an aluminum frame on which the door itself is hung.

Alumatic doors are made in all sizes, with 1 in. variations in width and height. Alumatic Corp. of America, 1229 S. 41st St., Milwaukee 4, Wis.

AWNING TYPE WINDOW

An aluminum, awning-type window which is designed for effective use in any climate features *Auto-Lok* hardware which closes the window automatically, tight enough to permit effective weathering.

When the vents reach closed position, a locking device engages and pulls the vents tight against the window frame, without any stress on pivotal points or excessive pressure on an operating bar, according to the manufacturer's description.



Special weather stripping and hardware enable window to be used in any climate

Cross-Over weathering also is an exclusive feature of the Auto-Lok window. A complete "seal" is said to be effected by bonding a specially designed section of plastic to the perimeter of the window so that when the window is closed the horizontal weatherstripping crosses over the vertical weatherstripping.

The window can be opened or closed from the locked position with only 5½ turns of the operator, and a special arrangement makes it possible to operate the window without removing the screen. Ludman Corp., 21 N. W. 21st St., Miami, Fla.

How to Capture the Weathered Charm of Old New England

Architect: R. H. Dana, New Rochelle, N. Y.

Cabot's weathering brown and gray Creosote Stains produce the charming appearance of old New England houses, within six months after application! These stains penetrate deeply, bring out all the natural beauty of the wood . . . give a mellow weather-beaten effect after a short exposure to the elements!

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Besides weathering grays and browns, Cabot's Stains come in a variety of brilliant hues which maintain their true color, even after long exposure. Cabot's Creosote Stains are inexpensive . . . cost only *one-third* as much as good paint!

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Unusually attractive exterior treatment and lower cost achieved with modern, reinforced concrete stucco. Durability insured with the Keystone System of Stucco Application.

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Then compare the cost of portland cement with equivalent siding materials. That shows you why the use of concrete stucco substantially reduces building costs.

And, when you employ the Keystone System of Stucco Application, you see why modern, reinforced concrete stucco is a durable siding for all climates. Every step in this system contributes to quality construction. The use of heavy-gauge, galvanized, cold-drawn steel Keymesh Reinforcing insures permanence. In the Keystone System, Keymesh is furred out ¼″ to ⅜″ from the building felt—then deeply embedded in what becomes a strong, true, crack-resistant wall.

Now give your clients a pleasant surprise by designing with modern, reinforced stucco —for new homes and overcoating old homes. Be sure to specify Keymesh Reinforcing—1½″ hexagon mesh, 17-gauge steel wire, or 1″ hexagon mesh, 18-gauge steel wire.

Get complete stucco specifications and all the facts about the Keystone System of Stucco Application. Simply write for your copy of "Specifications for Beautiful, Durable Stucco."

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PEORIA 7, ILLINOIS
Manufacturers of Keymesh Reinforcing, Welded Fabric, Tie Wire and Nails

Durable, Low-Cost Stucco Calls for KEYMESH

AIR SANITATION

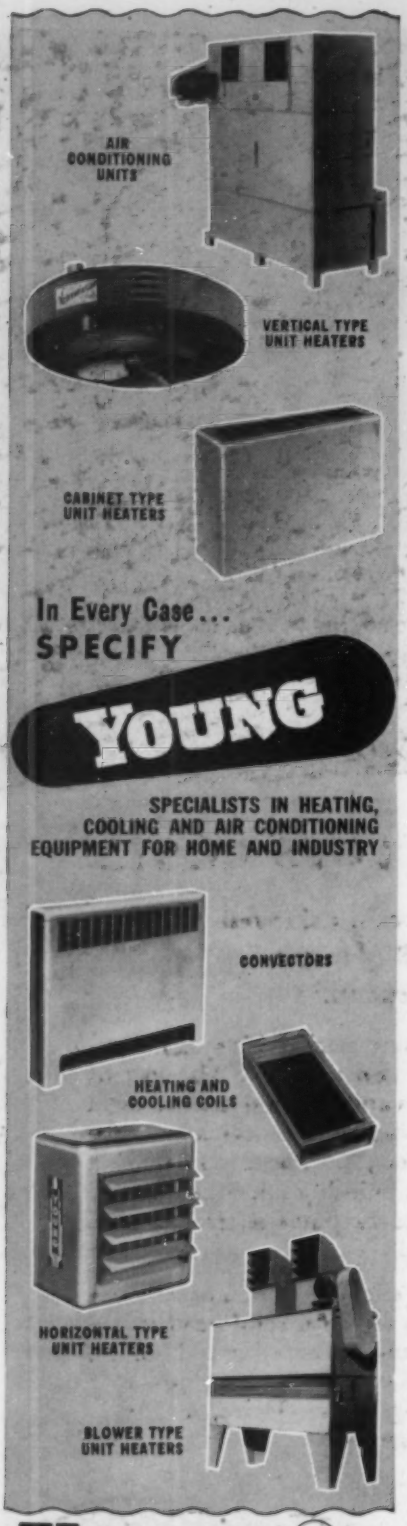
(*Continued from page 143*)

Louvered fixtures are also suitable, but not essential, in rooms where there may be only part time occupancy and in rooms with ceilings over 10 ft. high. In such rooms open types of fixtures may be used so long as the ceiling reflectance is still down to 5–10 per cent. In such rooms and fixtures germicidal tubes up to a 6 ultraviolet watt rating may be safely used but tubes of a higher rating should be used only in louvered fixtures. Figs. 10, 11 and 12 show the spatial distribution, schematic installation suggestions and typical school installation. Such fixtures project 35–50 per cent of the ultraviolet output of the germicidal tube in a direction of maximum intensity 20–30° above the horizontal.

It is obvious that the ultraviolet reflectance of ceilings must always be considered and a meter to measure it directly is commercially available. Unpainted "white-coat" and acoustic ceilings containing gypsum products nearly always have an objectionable ultraviolet reflectance of 15–50 per cent, making operation and exposures of more than two to three hours impractical, regardless of the ceiling height. The "white-coat" should be painted with an oil paint and the acoustic ceiling should be given one or two light coats of Casco wall size or filler which will have little or no effect on its color or acoustic properties and will reduce the reflectance to 5–10 per cent.

Germicidal ultraviolet, like the sun's ultraviolet, will fade some wall paints and papers and drapery fabrics, especially where their upper ends extend into the directly irradiated upper parts of a room. Although there has been little such trouble, the possibility should always be anticipated, especially in offices and homes.

Paralleling the uses of air sanitation for human protection there are innumerable applications for the protection of products in processing and storage, in pharmaceutical factories, bakeries, breweries, wineries and meat processing and storage plants. In such applications the killing or growth prevention of yeasts and molds may be more important than the killing of bacteria. Nearly all such applications require individual custom made equipment and application engineering detail outside the scope of this paper.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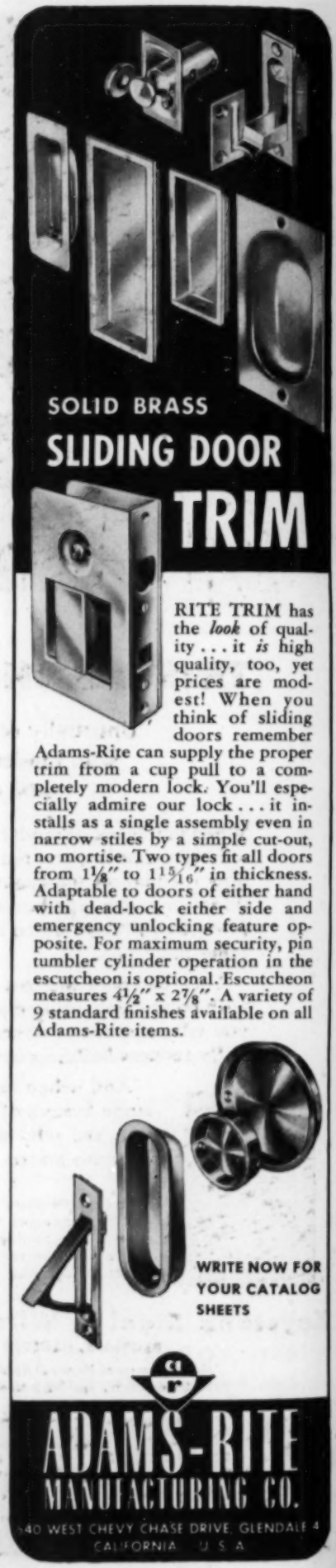
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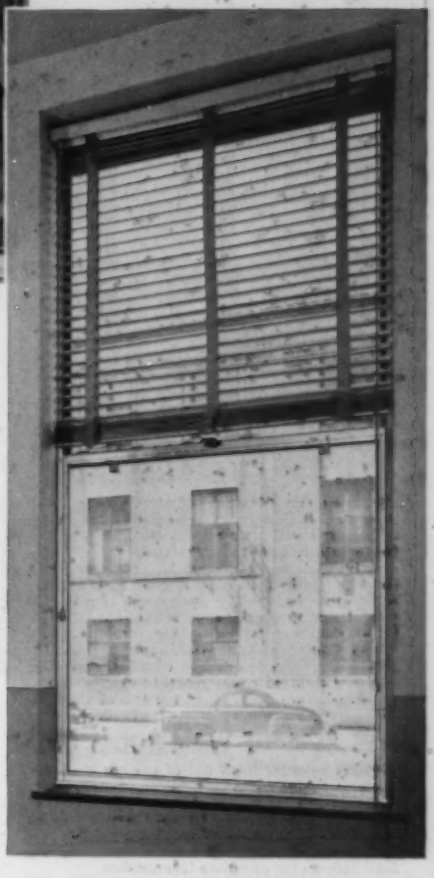

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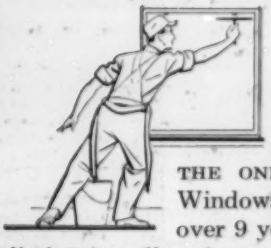

THE ONLY MAINTENANCE these Adlake Aluminum Windows have required since they were installed—over 9 years ago—is routine washing! Ultimately, by eliminating all maintenance costs, they will pay for themselves. *And they will last as long as the building!*

ONLY ADLAKE WINDOWS have the combination of woven-pile weather stripping and patented serrated guides that assures minimum air infiltration and absolute finger-tip control.

Adlake Windows never warp, rot, rattle, stick or swell. They retain their good looks and easy operation for the life of the building.

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ALUMINUM WINDOWS
have these "plus" features:

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- No Warp, Rot, Rattle, Stick
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(Continued from page 152)

for main, range and lighting circuit protection, with terminals for water heater connection. Important features are outlined and schematic drawings are included. 4 pp., illus. The Trumbull Electric Mfg. Co., Plainville, Conn.*

Planning Book for Electrical Living Homes. Information on fundamentals of kitchen and laundry planning and room lighting for utility and beauty. Kitchen and laundry layouts are given, designed to give maximum utility within an allotted space. Recommended minimum wiring requirements are outlined. Illustrations of exteriors and interiors, floor plans and wiring diagrams of four "Electrical Living Homes" are included. 24 pp., illus. Better Homes Bureau, Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.*

Overhead Trolley Conveyors

Link-Belt Overhead Trolley Conveyors Make Ceilings Pay Dividends (No. 2330). A wide variety of actual installations are pictured to show the adaptability of the Link-Belt trolley conveyor. Among those conveyors shown is one type which is electrified with bus bars along the conveyor track to provide current for continuous testing of electric fans, etc.

Also illustrated are specially made hangers for suspending the product from the conveyor chain.

There are photos of the conveyors in warehouses, industrial plants, bakeries, textile mills, etc. 28 pp., illus. Link-Belt Co., 307 N. Michigan Ave., Chicago 1, Ill.

Spandrel Wall Construction

Development of a Spandrel Wall Construction System (PB 93481). A technical report telling how multi-story buildings can secure increased floor space with the same outside dimensions through the use of a new type of spandrel wall construction. Included are tables, graphs, photos and drawings. 54 pp., illus. Office of Technical Services, Dept. of Commerce, Washington, D. C. *$2.00.*

Boilers

International Water Tube Power Boilers, Type "CR." Describes operating features of a type of boiler suitable for government buildings, manufacturing

(Continued on page 190)

NEW — FASTER-DRYING Sani-Dri

DRYS HANDS OR FACE
25% FASTER
THAN EVER BEFORE

Now you can provide 24-hour hand or face drying service in your washrooms, and eliminate your towel problem completely! The new, faster-drying Sani-Dri drys quickly and thoroughly with a stream of hot air, the most sanitary method known. A new heating element and faster-flow nozzle makes it the fastest drying machine of its kind . . . 25% faster than before! Sani-Driers are ideal for modernization of old washrooms or new installations. They have been installed and used in every civilized country and in every climatic condition. They have stood the test of time for 22 years!

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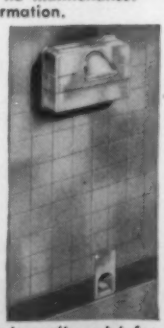

Built-in wall model for new installations.

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- Makes contact *ONLY* when standard cap is inserted
- Conventional operation . . . double contact springs
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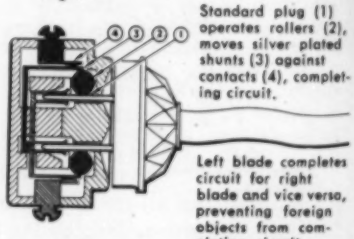
- Takes polarized or standard caps


Standard plug (1) operates rollers (2), moves silver plated shunts (3) against contacts (4), completing circuit.
Left blade completes circuit for right blade and vice versa, preventing foreign objects from completing circuit.

Featuring an entirely new principle, the Hubbell SP-49 Receptacle was designed to reduce the possibility of accidental shock and burn, makes contact ONLY when standard caps are inserted! Pins, wires or other foreign objects cannot energize the unit! The SP-49 provides easier wiring, more wire room, back wiring, washer ears, silver plated contact springs, interlocking bridge and takes standard caps.

For descriptive literature write

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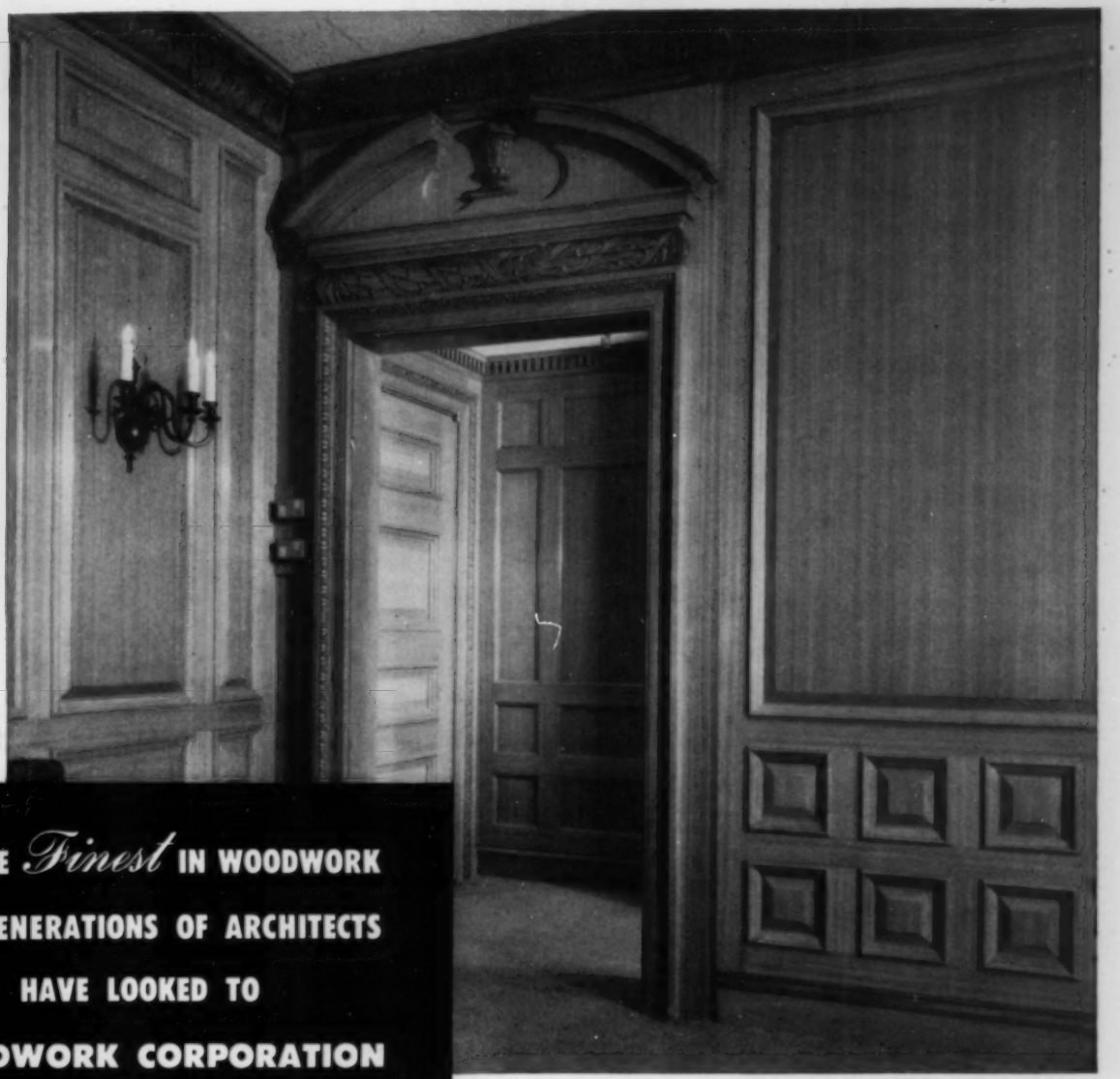

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LOOK FOR THE ZIGZAG BAGS

(Continued from page 188)

plants, hospitals, laundries, etc. Sections of the bulletin include: fuel saving quality, baffling for various types of fuels, bases for heavy overloads, details of water tube design. 8 pp., illus. The International Boiler Works Co., East Stroudsburg, Pa.*

Lighting

RLM Standards on Porcelain Enamel for Industrial Lighting Units. Outlines specifications on porcelain enameled steel for lighting fixtures such as thickness, reflection factor and durability. The booklet is designed to acquaint those interested in the specification, purchase or installation of industrial lighting equipment with the quality standards established by the RLM Institute to insure efficient, economical lighting installations. RLM Standards Institute, Publications Office, 326 W. Madison St., Chicago 6, Ill.

Lamps by Raymor. A portfolio containing pictures of modern lamps together with a card having swatches of available lampshade materials. A price list is included. Both table and floor lamps are shown. Richards Morgenthau & Co., 225 Fifth Ave., New York, N. Y.

(1) Lighting Fixtures by Swivelier (Bulletin No. 123); (2) Swivelier's Recessed Ceiling Top-Lites (Bulletin No. 14A). Both of these bulletins show a line of spot-lighting fixtures and accessories. The first one includes air cooled units of various types, channel fittings for "torpedo" or "hood" shade pipe units, color clips, lenses, louvers and clamp-on units. The second contains lights, with or without louvers, for installation flush with ceiling. 8 and 1 pp., illus. Swivelier Co., Inc., 30 Irving Place, New York 3, N. Y.

Kitchen Equipment

American Kitchens — Specifications. Included in this portfolio are folders on steel kitchen sinks, steel wall and floor cabinets, a garbage disposal unit and a kitchen ventilator.

One of the folders entitled "How to Plan Efficient Economical Kitchens With American Welded-Steel Kitchen Units" contains layouts for the U-type or three-wall kitchen, the corridor-type

(Continued on page 192)

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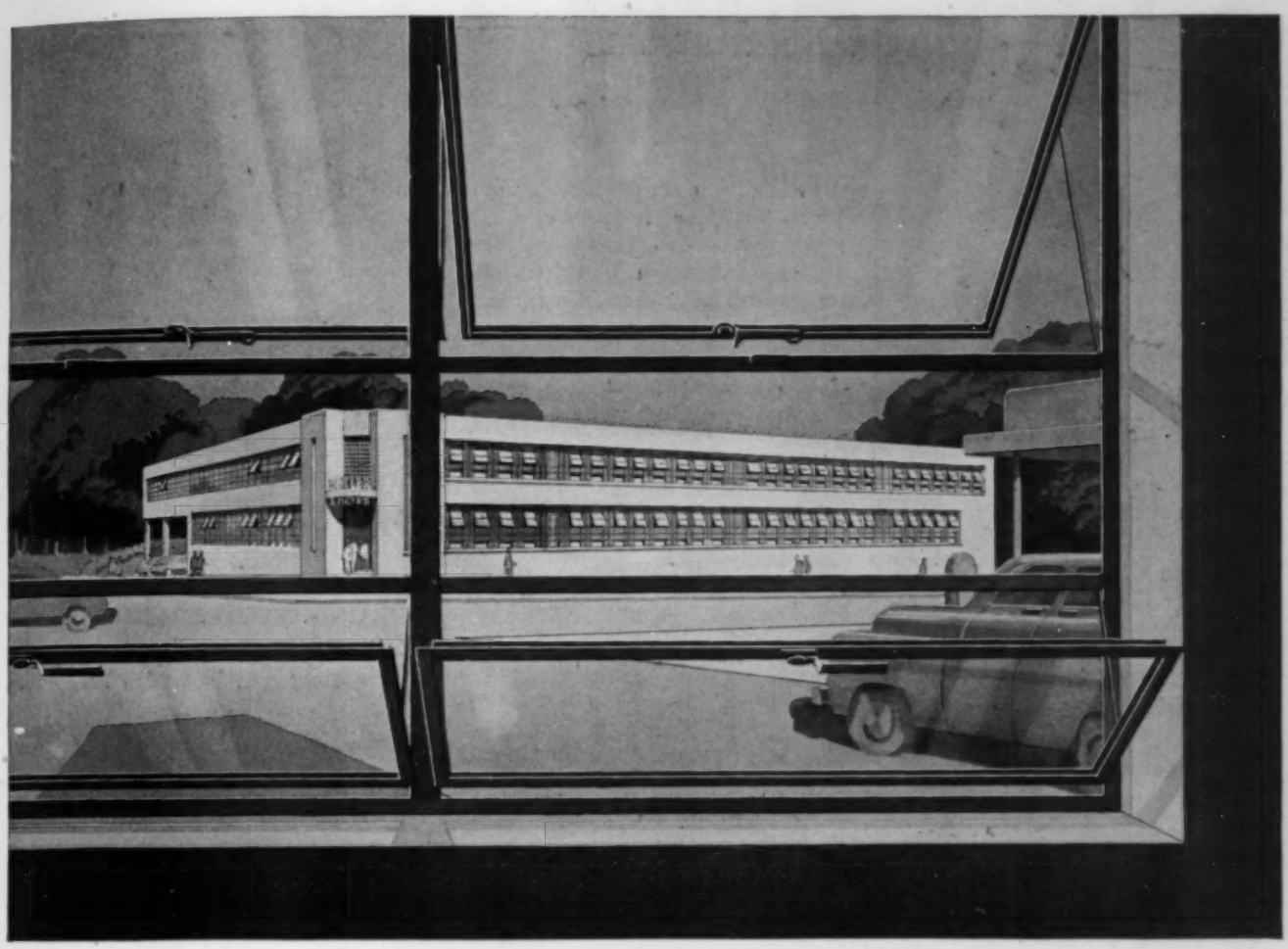

Butlers, Inc., Atlanta, Georgia.
Engineers and Contractors: L. B. Jackson Co., Asheville, N. C.

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